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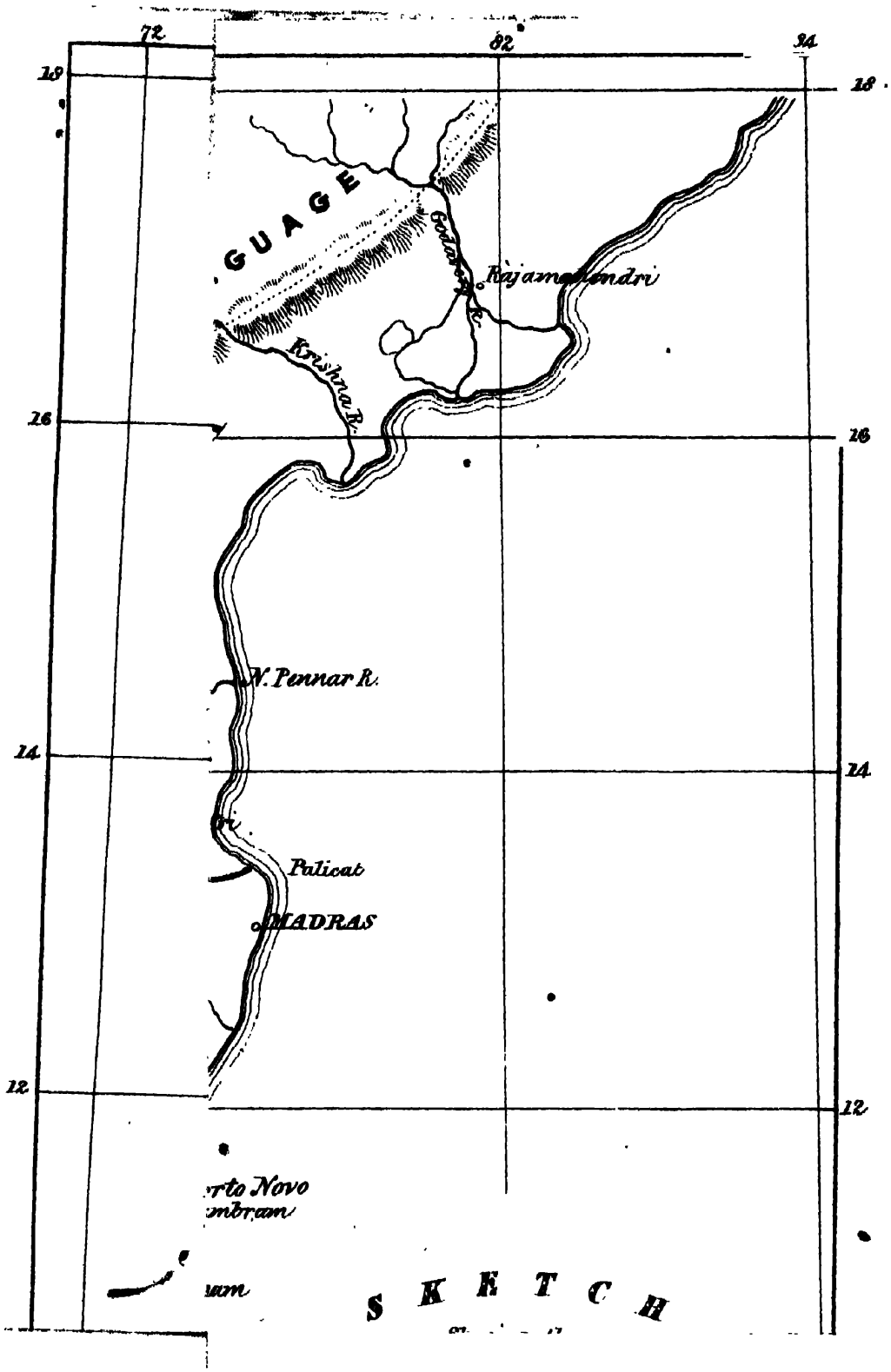
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OF

THE ROYAL ASIATIC SOCIETY.

ART. I.—*On the Geographical Limits, History, and Chronology of the Chera Kingdom of Ancient India, by* MR. J. DOWSON.

TRADITION and native records represent the southern portion of the Indian peninsula as being anciently divided into three contemporary kingdoms. 1. The Pándya. 2. Chola or Sora. 3. Chera, Sera or Konga. Of the first, a valuable account has been supplied by Professor Wilson, in Vol. III. of the Society's Journal; and of the other two, slight sketches have been given by the same learned writer, in the Introduction to his Catalogue of the M'Kenzie Collection: a more detailed notice of the last is the object of this paper.

The notices of this kingdom which have been published, have been drawn chiefly from a Tamil memoir, in the M'Kenzie Collection, called "Konga desa Charitra," or "Konga desa Rájákkal," of which a translation exists in the Library at the East India House; it has been noticed, in Professor Wilson's Catalogue, at p. 199, Vol. I., and in page 1 of the Rev. W. Taylor's Analysis of that Collection.

This Memoir gives the history of the Chera dynasty, of those Chola monarchs who held the country of Chera by conquest, and also of the Hoyisála or Bellála and the Vijayanagara dynasties, into whose power it successively fell. It is the only paper in the collection from which any useful notices of the Chera monarchs can be obtained, and the history of that dynasty rests at present mainly upon it. In style it is stated to be very different from the generality of Hindu writings of this class, and independently of its being our only authority, it merits a fuller notice than has yet been given of it. From the before-mentioned translation, the following Abstract of the first portion which relates to the Chera dynasty and its Chola conquerors, has been prepared, in which all important and useful information on that subject has been retained; the parts relating to the Bellála and Vijayanagara kings will be useful in any future accounts of those dynasties, but are unnecessary for our present purpose.

The Rev. W. Taylor speaks of this memoir in high terms of commendation: he made a translation of the whole of it, which he intended for insertion in the "Journal of the Bengal Asiatic Society;" it has however never appeared. In his Analysis of the M'Kenize Collection, he says it "is for the most part free from the mythological fable which usually disfigures Hindu documents, and is well supported by dates, in general referred to inscriptions which are mentioned, and many grants of land are specified with such reference. On the whole this is one of the best, and most valuable manuscripts in the collection." In qualification of this praise however, it must be observed that, the accounts it gives of the Hoyisála and Vijayanagara kingdoms differ in some instances from others, particularly in reducing the number of kings; and that implicit credence cannot be given to the dates in the first Part, will be seen from the observations which follow the Abstract; those of the second and third Parts appear to be tolerably correct.

The translation of this document in the volume of MSS. at the India House, is preceded by an introductory note, and an analysis of the first part relating to the Chera desa; to these no name is attached, but they are evidently the work of an European. The introductory matter supplies some valuable geographical information, which has been incorporated into the following observations upon that subject.

We will now give the abstract of the memoir, reserving further comment for the inquiry which will follow it.

1. The first king, named Sri Víra Rája Chakravartí, was born in the city of Skandapura, and was of the Reddy[1] or Ratta tribe (culam), and of the Súrya vamsa (solar race); he obtained the government of the country and ruled with justice and equity.

2. Govinda Ráya, son of Víra Rája, was the next king.

3. Krishna Ráya, son of Govinda Ráya, ruled next.

4. Kála Vallabha Ráya, son of Krishna Ráya, was next in succession.

Of these kings nothing more than their equity, justice, and renown is recorded.

5. Govinda Ráya, son of Kála Vallabha, was the fifth in succession; he conquered the hostile rajas, exacted tribute from them, and ruled his country with justice and renown. This king made a grant of land to a Jaina Brahman, named Aristánan, for the performance of worship in the Jaina basti (temple) of Kongani Varma, in Vaisákha, A. Sál. 4,—year of the cycle, Subhánu (A.D. 82).

6. Chaturbhúja Kanara Deva Chakravartí succeeded; he was of the

[1] A Telugu tribe. See Ellis's Mirasi Right, p. xii.

same race, but his parentage is not mentioned. He is stated to have had four hands[1]; he was versed in the art of archery and various sciences, and ruled with equity and renown, "obtaining the honorary insignia of all the other rájas."

A jaina named Nága Nandi, a learned and venerable man, was minister to the three last named rajas.

7. Tiru Vikrama Deva Chakravartí I., son of Chaturbhúja Kanara, succeeded, and was installed in A. Sál. 100 (A.D. 178), at Skandapura. The celebrated Sankaráchárya (called in the MSS. Sankara Deva) came to this king and converted him from the Jaina to the Saiva faith. After his conversion he marched into the southern country and conquered the Chola, Pándya, Kerala, and Malayálma countries, after which he returned. He made many grants in charity and in encouragement of the learned; a deed of grant, dated Vaisákha-sud A. Sál. 100,—year of the cycle, Sidhárthi (A.D. 178), to Narasimha Bhatt, Guru, of the Bharadwája gotra, is stated to be in the temple of Sankara Deva, at Skandapura. This king governed the Karnáta as well as the Konga desa.

8. Kongani Varma Ráya succeeded; he was of the Konávar or Konváyan tribe and Ganga kula, and was installed at Vijaya Skandapura in A. Sal. 111,—year of the cycle, Pramodúta (A.D. 188), and reigned for fifty-one years; he exacted tribute from many rájas whom he conquered, and "by his munificence and charity cleared away the sins of his predecessors of the Ganga race;" his title was Srimat Sampati Kongani Varma Dharma Mahádhi Ráya.

9. Srimat Mádhava Mahádhi Ráya, son of Kongani Varma, succeeded, and was installed in the government of the Konga desa, at Skandapura; he was learned in all the sciences and maxims of justice, ruled with equity, and was renowned for his munificence to the learned and the poor.

10. Srimat Hari Varma Mahádhi Ráya, son of Mádhava Ráya, succeeded; he was installed at Skandapura, but "resided in the great city of Dalavanpura, in the Karnáta desa." He exacted tribute from many different rájas, and was renowned as an eminent hero among all kings; he ruled according to the maxims of polity, and being very wealthy made many grants of land, one of which is recited, viz., a grant of land in Tagatúr, a petta (suburb) of Tálakád to the Brahmans for the worship of Múlasthán Iswara in that place, dated Panguni, A. Sal. 210,—year of the cycle, Saumya (A.D. 288).

[1] The writer of the MSS. has evidently understood the title *Chatur-bhúja*, "four armed," as having a personal and literal reference to this prince; it is however a title of Vishnu, which is frequently assumed by his followers.

11. Vishnu Gopa Mahádhi Ráya, son of Hari Varma, succeeded, and was installed at Tálakád or Dalavanpura; he conquered the *Púrva-dik* (eastern country) and was renowned as a great warrior; he made many grants to Brahmans and to the poor, and being a zealous votary of Vishnu, erected many temples to that deity; hence he derived his name of "Vishnu Gopa." "The Konga and Karnáta desas were both under his command:" having no children he adopted a lad of his own race, named him Mádhava, and resigned the crown to him.

12. Mádhava Mahádhi Ráya, adopted son of Vishnu Gopa, was installed at Dalavanpura, and ruled for some time under the orders of his father; but a son being born to Vishnu Gopa, that son was installed in the government.

13. Krishna Varma Mahádhi Ráya, son of Vishnu Gopa, was installed at Dalavanpura, and on that occasion he granted some "countries near the Kanavái and the mountains to his adoptive brother, Mádhava Mahádhi Ráya, who had lately ruled;" he governed the kingdom equitably; he was a zealous votary of Siva, and having set up a Linga at Dalavanpura granted some lands for its support: he had no son.

14. Dindikára Ráya, son of Kúláti Ráya, of the family of Vishnu Gopa's adopted son Mádhava, ruled for some time, but was deposed by he Mantri Senápati of the late rája, who installed

15. Srimat Kongani Mahádhi Ráya, son of Krishna Varma's younger sister, in A. Sál. 288,—year of the cycle, Parábhava (A.D. 366). This prince was learned in sciences and in languages, "he conquered all the desas and took tribute from their rájas," and granted many charities. A person named Yárachandra Dindikára Ráya, who had some desas under his charge during the reign of this king, made a grant of the village of Parola-kanúr near Alúr gráma.

16. Dúrvanítí Raya, son of Kongani Raya II., succeeded and ruled the Konga and Karnáta desas. This prince is represented to have been deeply versed in magic and the use of mantrams; by repeating the mystical word OM when his enemies were drawn up against him, they were enervated and dispirited, so that he obtained easy victories over them. He conquered the countries of Kerala, Pándya, Chola, Drávida, Andhra, and Kalinga, and exacted tribute from the rajas thereof; all hostile kings were afraid of him, and hence he was called Doony Veeroota Ráya (Dharma virodhi, or Punya virota) the unjust Ráya.

17. Múshakára Ráya, son of Dúrvanítí, succeeded, he was learned in the military art, and took tribute from those rájas whom his father had conquered, keeping them in subjection and fear. He resumed the

grants which had been made to the Brahmans and the poor; and hence he obtained the title of Brahmahatya Ráya.

18. Tiru Vikrama II., son of Múshakára, succeeded; he was a learned man and well versed in the science of government; "he obtained possession of all the desas," and ruled them with justice.

19. Bhú Vikrama Ráya, son of Tiru Vikrama succeeded, and was installed in A. Sál. 461,—year of the cycle, Sidhárthi (A.D. 539). He ruled the two countries of Konga and Karnáta, and conquered many other countries. From the great number of elephants which he procured, the title of Gajapati was given to him; he had several weapons made of ivory which he kept by him as trophies of victory. He maintained all the charitable and religious grants which had been made by his ancestors in the countries which they had conquered, as well as in the Chera and Karnáta countries.

20. Kongani Mahádhi Ráya III., succeeded his father Bhú Vikrama, and governed the countries with justice and equity. He made his brother commander of his armies, and several rájas having refused to pay tribute, he collected his armies and conquered the Chola, Pándya, Drávida, Andhra, Kalinga, Varada, and Maháráshtra desas, as far as the Nerbadda river, and took tribute from them; he then returned to his capital, Dalavanpura, which he strongly fortified, and made many benefactions. The title of Bhú Vikrama Ráya was taken by him. He acted in these campaigns, and in the government of the country, under the advice of his youngest brother Vallavagi Ráya.

21. Rája Govinda Raya succeeded his father, and ruled the country with equity and renown, subduing all the hostile rajas. He was "esteemed a most pure person in the Gangakula," and from his attachment to the Lingádhárí sect, was called Nandi Varma. This prince resided for some time at the city of Muganda-pattana.

22. Sivaga Mahá Ráya, brother of Govinda Ráya, succeeded; he was installed at Dalavanpura, but resided for some time at Muganda-pattana, ruling the kingdom justly. In A. Sál. 591,—year of the cycle, Pramodúta (A.D. 668), he made a grant of the village called Halihalli to a learned Brahman of Drávida desa.

23. Prithiví Kongani Mahádhi Ráya, grandson (son's son) of Sivaga, succeeded; his commander-in-chief, Purusha Ráya, conquered the hostile rájas, and the king conferred upon him a grant of twelve villages near Skandapúra, and the title of Chavurya Parama Narendra Senádhipati, in Chaitra, A. Sál. 668,—year of the cycle, Párthiva (A.D. 746). This king ruled the country in felicity, and was known by the title Siva Mahá-rája.

24. Rája Malla Deva I., son of Vijayáditya Ráya, younger brother of

Prithiví Kongani Ráya, succeeded, and ruled the Konga and Karnáta desas. This prince always dressed with magnificence and elegance. He is recorded to have made a grant to his Senádipati "of twelve villages belonging to Vijaya Skandapura, situated above the Kanaváí, along with Vijaya Skandapura." The mantris of his tribe, the nobility, and the Mallikárjuna Swámí, were declared witnesses to the grant.

25. Ganda deva Mahá-ráya, son of Malla-deva, succeeded; he was a powerful prince, and obtained the different insignia of all the rajas. He fought with the Drávida Raja in Kánchi desa, defeated him and exacted tribute from the country; he fought also with the Chola Raja, "into whom he carried terror, and afterwards established amity with him." He maintained a friendship with the Pándya Raja, and was renowned among the Ganga-kula for protecting the kingdom.

26. Satya Vákya Ráya succeeded his father Ganda deva, and ruled the kingdom in equity and justice, punishing the wicked and protecting the good. He was never failing in truth, hence he obtained the title of Satya Vákya Ráya (the truth-speaking king).

27. Gunottama Deva, brother of Satya Vákya, was installed at Dalavanpura; he ruled the kingdom in an equitable manner, allowing many charities, and maintained friendship with the other rájas.

28. Malla Deva Ráya II., younger brother of Gunottama, succeeded during the life-time of the latter, whom he is stated to have kept at Vijaya Skandapura. This king was a very valiant man and defeated the Pándya Raja, who had attacked him.

In the reign of this prince, his brother Gunottama made a grant of land in Ani, A. Sal. 800,—year of the cycle, Vikari (A.D. 878), to a Jaina, for the performance of worship to a Jaina deity.

On the 7th Vaisákha sud, A. Sal. 816,—year of the cycle, Ananda (A.D. 894), a person named Tirumalayan, built a temple, and to the west of it erected an image of Vishnu, which he called Tirumala Deva, upon some land "in the midst of the Cávéry," where in former times the western Ranganád Swámi had been worshipped by Gautama Rishi, but which was then entirely overrun with jungle. This place he called Srí Ranga pattana (Seringapatam).

Chola Conquest.

29. Vijaya Ráya Aditya Varma, son of Vijayada[1] Ráya, who had been installed at Tanjore as King of the Chola-desa, came into the Chera-desa, conquered the "Vedar[2]" Rajas thereof, reduced the capital

[1] The introductory note calls him "Virata."

[2] A tribe of hunters, said to be the aborigines of the peninsula.

Tálakád, and governed the country. He made many charitable grants in Chera.

30. Vira Chola[1] Ráya, son of Aditya Varma, was installed at Tanjore, and became King of the Chera and Karnáta desas. He was a very valiant man and conquered many desas; hence he obtained the title Víra (hero), and from being a zealous follower of Vishnu he was called Náráyana; thus, Víra Chola Náráyana. "He and the Pándya Raja both conquered many desas; he went to Sinhala desa and conquered the raja thereof, thereby obtaining great fame." He granted many agraháráms in free gift to Brahmans; one situated on the banks of the Cávéry in Chola-desa, was named Víra Náráyanapur. He one day saw on the sea-shore the Sabhápati of Chillambara (Siva), attended by Párvatí, dancing and beating the damaraka (a kind of drum); he therefore expended great sums of money in building the Kanaka or golden Sabhá. Having many sons, he appointed Dásoditya Ráya to be King of the Chola-desa, and Arunjeya Ráya to the Drávida desa, and died.

31. Dásoditya Ráya was installed at Tanjore, and then performed the installation of his elder brother, Arunjeya Ráya, as King of the Drávida desa. He ruled the Chera country in an equitable and charitable manner; he granted four agraháráms on the Cávéry, and named them Chatur samudram; he died childless.

32. Parandaka Ráya, son of Dásoditya's brother Arunjeya, conquered the Pándya raja and took tribute from him. He married a virgin named Chittiri, daughter of Chati Ráya; by her he had a son, who having conquered many enemies, was called Arimalli; he died before his father, who by the same wife had many other sons. This king granted many agraháráms, and other charities.

33. Divya Ráya, son of Parandaka, succeeded, and ruled the Drávida, Chera, and Karnáta desas. He was alarmed by Víra Pándya, who came to Tanjore to fight, but defeated him and cut off his ears, upon which the Pándya Raja returned to Madura; from this feat he was called Arititu Ráya. He then went to conquer the Uttara desa (northern country), leaving his mantri in charge of the public affairs at Tanjore, but remaining absent a long time, quarrels arose between his relations and the mantri, whose authority was unheeded; upon hearing of which, he returned and restored tranquillity, and punished those who had rebelled. After this he conquered Satya Kánakár, of the Vaitonda vamsa, and despoiled him of a great quantity of precious stones, which

[1] A note in the MSS. states, that "according to the Condatoor MSS. he reigned from Saliváhana 849 to 899 (A.D. 927 to 977)."

he gave to the Brahmans in charity, in order to obtain the favour of Náráyana. He caused many canals on the Cávéry to be dug, and made many charitable grants; he had no sons, he therefore installed his younger brother, Ari Vari Deva.

34. Ari Vari Deva, brother of Divya Ráya, ruled the desas of Chola, Drávida, Konga, and Karnáta. His brother, Divya Ráya, marched with an army to Madura, defeated the Pándya Raja, and forced him to take flight: he then reduced the Pándya-desa, and having plundered Virenjipuram[1] returned to Tanjore. The mother of the defeated and fugitive Pándya Raja, being a near relative to the Chola Raja, the latter, after having received large quantities of jewels and money, restored Madura to the Pándya king, and lived afterwards in amity with him. "The Senádhipati (commander) of the Pándya Raja, who was a near relation, came to the Chola Raja;" his name was Amra Bhojangan, and the king being pleased with him gave him the command of an army, with which he marched as far as Saha parvata to the west, and from thence into the Kerala desa, the raja of which attempted to defend the country, but Amra conquered the Kollúr, Indra-giri, and Nila-giri countries; "and that raja having lost everything, and being defenceless, embarked on ship, and fled to the islands in the midst of the ocean." By command of his master, he buried all the treasures, jewels, and whatever he had plundered, in the Kanaváí sthala of Siva; Bhíma Ráya, having heard of these events, attacked him, but was defeated, and lost his son. Amra then marched into the Kalinga desa, and took tribute from the rája, and proceeded from thence to the Narmada river, where he conquered many rajas; having subdued Vaitonda Ráya, Kámaranava Ráya, Dana Pallia Bhíma Ráya, and Amán Ráya, and taken from them money, jewels, the ladies of their palaces and tribute, he returned to the raja, bringing among the plunder the golden statue of Bhíma Ráya, having planted the "victorious tiger-standard" in the Pushkama-dik (western country), on the Narmada river and on Mahendra-giri. The raja was highly pleased on seeing the treasures, and observing that his grandfather had built only a Kanaka Sabhá to the Chillambara deity (Siva); he built Gopuras (spires, towers), Maddals, (inclosures), Mandapams (image-houses), and Sabhás (holy places or apartments), and granted many jewels to the deity. He resided at Tanjore, and ruled both the Konga and Karnáta desas, making numerous grants of land and other donations. He made a grant of the village of Káriyúr, in Tálakád, to the north of the Chera desa, in agraháram to the Brahmans of Tálakád, placing Vaisyas

[1] There is a place of this name in the Drávida desa; it is situated a little to the west of Vellore.

in charge of it, and called it Rája-rája-pura. He thus made many grants on the 5th Mágha sud, A. Sal. 926,—year of the cycle, Viswavásu (A.D. 1004).

The notice of the Chola dynasty here ends abruptly, and the MS. proceeds to the history of the Bellála rulers.

THE first point of inquiry which presents itself is that which relates to the Geography of the Chera Kingdom; its boundaries, the situation of its capitals, and the locality of the several desas and cities, which are mentioned in the preceding paper; referring more particularly to countries which were under the Chera rule.

The boundaries and extent of Chera, as defined by Tamil classic writers, are given in the second volume of the Rev. W. Taylor's Translations of Historical MSS.[1], in the following words:

STANZA SUPPOSED TO BE BY AVYAR.

"The northernmost place is Pazhani (Pyney), the most eastern is Chengodu (Trichengode), the most western is Kozhikudu, on the south is the shore of the sea; in all eighty kadams (eight hundred miles), is called the boundary of the Sera country."

STANZA BY AVYAR.

"The northernmost place is Pazhani, to the south is the southern Kasi, to the west is Kolikudu, the sea-shore on the south is called the boundary of the Chera kingdom."

A PROSE DESCRIPTION PRESUMED TO BELONG TO MIRTANJEYA PATTAR.

"On the north Pazhani, to the east the great town (or Perúr), on the south the sea, on the west the great mountain; from east to west forty kadams (four hundred miles), from south to north forty kadams (four hundred miles), making together eighty kadams (eight hundred miles). Its revenue ten millions of pattans, of which four make a kali pan."

To these may be added, that quoted by Professor Wilson, in his Catalogue of the M'Kenzie Collection[2].

TAMIL VERSE.

"The Palini river on the north, Tencasi in Tinnavelly on the east, Malabar on the west, and the sea on the south."

Professor Wilson, in the Introduction to the Catalogue of the M'Kenzie Collection, founding his description chiefly on the last verse,

[1] Taylor's MSS. App. vol. ii. p. 26. [2] Wilson's M'Kenzie Cat. i. 198.

says, "The northern limits of Chera varied at different periods, being originally placed at Palini near Dharápura, whilst at a subsequent period the capital, Dalavanpura or Tálakád, above the Mysore Gháts, indicates a considerable extension of the boundary in that quarter, and the Chera principality probably included the greater portion of Karnáta. Its eastern limits were the possessions of Chola and Pándya, and the western those of Kerala. In its early state, however, it comprehended the extreme south of the Malabar coast or Travancore, and consisted of that province, Wynád, the Nilgiri mountain district, the southern portion of Coimbetore, and part of Tinnevelly. In this tract, we have in Ptolemy the people called *Carei*, and not far from it, *Carura Regia Cerebothri*, in which, making an allowance for inaccuracies of sound and expression, we have the Cheras, and Cárúr still a city in this district, and Cherapati the sovereign of Chera[1]."

The foregoing memorial verses are upon the whole tolerably concurrent; all four make the sea to be the southern boundary, and Calicut (Kozhikudu) or Malabar the western. The first makes Trichengode in Salem, and the last Tenkási, or the southern Kási, in Tinnevelly, to be the eastern boundary; the second verse makes two southern boundaries (the sea and Tenkási), omitting entirely the eastern, we may therefore reasonably include that Tenkási is intended for the eastern; the third verse gives "Perúr" as on the frontier, but as that term means simply "great town," it cannot be definitely applied. Trichengode and Tenkási are at a great distance from each other, but each might be considered as an eastern boundary, one being situated towards the northern extremity of the kingdom, the other toward the southern; a line drawn from one to the other might therefore be considered the eastern frontier: such a line would pass a little to the west of Cárúr, mentioned by Ptolemy as included in the Chera desa; and this town was, as Colonel Wilks informs us, so near the frontier, that it was alternately in the possession of the Chera, Chola, and Pándya sovereigns[2]. The northern frontier cannot be so easily settled; the first three verses give Pazhani as the boundary; the fourth, however, says the Palini river (the same name but a different orthography); the Pazhani of the first three verses has been considered to be the town of that name, variously spelt Palini, Pulney, and Pyney; this town is situated in the south of Coimbetore below Dharápura, whereas, Calicut and Trichengode are both far to the northward; the Cárúr of Ptolemy is also north of it. This town then could not have been the northern boundary; the Palini river of the fourth verse may help us in dis-

[1] Wilson's M'Kenzie Cat. Int. p. 92.
[2] Wilks's Sketches of Mysore History, i. p. 8.

covering the correct frontier. After diligent search no river of this name has been found; but various circumstances lead to the belief that the river Bhowany, which running eastward, falls into the Cávéry at Bhowany kudal, or as it is sometimes written Boviny Coral, a little above Erode, is intended.

The words in the lines quoted from the Tamil poetess Avyár, as given by Mr. Taylor, are, Vadakku-talam Pazhani, *i. e.*, north the sthalam Pazhani. A sthalam is a holy place, a place where a temple is erected in honor of some deity; now we have only to suppose an easy clerical error of one letter to have crept into the verse, and we shall remove the only obstacle to the tracing of a consistent line of boundary from the accordant testimony of the authorities referred to. If we substitute *v* for *zh* in the word Pazhani we have Bhavani, (for the same symbol in the imperfect alphabet of the Tamil expresses *p* and *b* and their respective aspirates,) and Bhavani would be a legitimate feminine form of Bhavan, signifying the wife of Bhavan or Siva, the goddess Párvatí, who has given name to the sthala, still known as Bhowany. Whether this conjecture be right or not, it appears highly probable that the river Bhowany was near the northern frontier, which must in all probability have been nearly the same as that between the British district of Coimbetore and Salem and the territories of the Mysore Raja, as the following observations will show.

1. A line drawn from Calicut on the Malabar Coast to Trichengode in Salem, these places being respectively mentioned in the Tamil verses as the western and eastern boundaries, would pass in the immediate vicinity of the Bhowany river.

2. The introductory note to our MSS. informs us, that Skandapura, the capital of the Chera kingdom, was situated a short distance west of the Guzzelhatty Pass; no direct confirmation of the locality here assigned to Skandapura has been met with; it appears, however, to be verified by our MSS., which says that Tiru Vikrama (No. 7), marched southward to Chola desa, and it may therefore be admitted as correct. The situation thus given to Skandupura, and the fact of Tiru Vikrama marching southward to Chola, render it necessary to place the frontier as far north as the boundary proposed.

3. Mr. Buchanan, in the Narrative of his Mysore Journey, makes a few incidental observations which also confirm it; he mentions Sanklidrug, a little to the north of Trichengode in Salem, Satimangala, near Danaikancotta in Coimbetore, and Nidi Cávil, about forty miles N.N.W. of Sanklidrug, as included in the Chera desa, Nidi Cávil being as he states, upon the frontier between Chera and Karnáta[1];

[1] Buchanan's Mysore Journey, vol. ii., p. 183, 185, 237 and 248.

he further mentions Coleagala and Arcotár (the former of which is situated a short distance in the Mysore territories, and the latter, on the borders of Coimbetore,) as being towards the southern extremity of Karnáta[1].

Concluding then upon the foregoing grounds, that the northern boundary must have been nearly the same as that of the modern Coimbetore and part of Salem; the outlines of Chera may be stated as follows:—

To the north it had the country of Karnáta, which it joined among the Ghats, nearly upon the present Mysore frontier: stretching from thence eastward it penetrated into the district of Salem as far as Sanklidrug or Trichengode: from thence it proceeded southward (Chola and Pándya being to the eastward, and the towns of Cárúr in Coimbetore and Tenkási in Tinnavelly near the frontier line,) to the coast of Travancore; and it included the western coast, as high up as Calicut in Malabar[2].

The Malabar district cannot, although included in the Chera kingdom, be considered as part of the Chera desa, for it was included in the ancient Kerala desa; the northern parts of Malabar above Calicut may be regarded as remnants of the ancient Kerala kingdom, which, together with the district of Wynád, did not fall under the sway of the Chera rajas before the conquest of Karnáta, in which desa Wynád was included[3].

The boundaries thus assigned to Chera, are in accordance with the general description of that country usually given, as consisting of Coimbetore and Salem[4]. To define, however, the boundaries of this or any other of these ancient kingdoms with exactitude is quite impossible, as they were continually varying according to the strength, ability, and ambition of their respective rulers.

The seventh king in our MSS. is represented as "ruling the country together with the Karnáta desa;" this was undoubtedly a conquest, but whether of his, or of his predecessors, we are not informed. This country is always mentioned in our MSS. as distinct from the Chera desa, although Dalavanpura or Tálakád in Karnáta, became at a later period the capital of the extended kingdom.

[1] Buchanan's Mysore Journey, vol. ii., p. 242.

[2] A list of titles of the Chera, Chola, and Pándya sovereigns, (Wilson's M'Kenzie Cat., vol. ii., p. cxxix., No. 24), gives the following among fourteen titles of the Chera Rajas. "Malayaman," Lord of Malaya: "Colly verpen," Lord of the Colly mountain in Salem.

[3] Buchanan's Journey, vol. ii., p. 484.

[4] Wilks's Sketches, &c., vol. i., p. 8.; Buchanan's Journey, vol. ii., p. 183, 185, and 304.

The boundaries of ancient Karnáta are no better defined than those of Chera; it consisted of the central districts of the peninsula, including the Mysore territories of the present day. The gháts present a good natural frontier, and for some distance on the east and west are recognised as its bounds; the southern frontier appears to have joined the Chera dominions, and is therefore defined by the northern boundary of that kingdom. An inquiry into the position of the northern frontier of Karnáta is unnecessary for our present purpose, as it seems clear that the whole desa could never have come under the rule of the Chera monarchs, for the Kadamba dynasty ruling at Banavási by the Varada river upon the frontier between the modern Mysore and Canara, and the Chalukya monarchs, whose capital was Kályán, and whose conquests appear to have extended as far southward as Banavási, were in existence before the extinction of the Chera rule, and must have occupied a considerable portion of the north and west of Karnáta. Of the former race, Professor Wilson mentions inscriptions from A.D. 168 to 1336, throwing some doubt however upon the first date[1]. Mr. Walter Elliott fixes the era of one king of this line about A.D. 580 or 600[2]. In reference to the latter or Chalukya dynasty, Mr. Elliot remarks, that proofs have been obtained of the possession of sovereign authority by the Chalukyas, from about the middle of the fifth century of our era[3].

The city of Dalavanpura or Tálakád, which under the tenth prince became the capital of the extended dominions of the Chera monarchs, was situated on the north bank of the Cávéry, about thirty miles east of Seringapatam, and immediately upon the frontiers of the present Mysore and Salem; its ruins are still known by the name of Tálakád. The introductory note to our MSS. informs us, that "it must have been a very splendid and extensive city, the Cávéry inclosing its fortifications on three sides; it was called the southern Gayá; five or six celebrated temples are still standing, many inscriptions being visible on their walls." When Mr. Buchanan visited Tálakád, he found only one temple which was dedicated to Siva, many others having been overwhelmed with sand, the tops of them alone remaining visible; an inscription upon the preserved temple he could not decipher[4]. Could these inscriptions have been procured, they would probably have thrown some valuable light either upon the Chera or Hoyisála dynasties, Tálakád having been at successive periods the capital of each.

Muganda-pattana, at which the twenty-first and twenty-second

[1] Wilson's Catalogue of M'Kenzie's Collection, vol. i., Int. xcviii.
[2] Journal of Royal Asiatic Society, vol. iv., p. 36. [3] Ib. p. 4.
[4] Buchanan's Mysore Journey, vol. ii., p. 162.

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JOURNAL

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I.—*Analysis of a Tibetan Medical Work.* By M. Alexander Csoma de Koros.

The principal work on medicine in Tibet, is that entitled the "i *Gyud* b*Zhi*" (རྒྱུད་བཞི the tract in four parts). It is attributed to Sha'kya, though not introduced into the *Kah-gyur* or *Stan-gyur* collections.

When in Tibet I requested the Lama, my instructor in the language of the country, to give me an account of its contents, which he did in an abridged compilation divided, like the original, into four parts. The present translation of the Lama's manuscript may be interesting to those who are curious on the subject of Tibetan literature, and the state of medical practice in that remote part of the world. The materials of the original are as usual all derived from Sanskrit works, which have not however hitherto been made known in an English dress.

The following is the account given in the work itself of the manner in which this Treatise of Medicine found its way to Tibet.

In the time of Khri-srong Dehutsán (in the 8th or 9th century of the Christian era) a Tibetan interpreter Bairotsana (or Vairochana) having translated it in Cashmir, with the assistance of a physician pandit (ཟླ་བ་མངོན་དགའ-Davá *m*Ňon-gah) presented it to the above mentioned Tibetan king. At that time it was received by "*g*yu-thog" a learned physician, and by several others, and afterwards it devolved successively to others till *g*yu-thog, (the 13th in descent, from the first) styled the New *g*yuthog, to distinguish him from the former physician of the same name, who is called 'the ancient.' This physician much improved and propagated it, and at that time, it is stated, nine men became learned in medicine.

The Lama, who wrote me this extract, enumerated several works on medicine, current in Tibet, of which the most celebrated is a

commentary on the present work, entitled "Baidúrya sñon-po" (the lapis lazuli), written by "Sangs-*r*gyas *r*gya *m*ts'ho" སྔེ་སྒྲིད་སངས་རྒྱས་རྒྱ་མཚོ་ a regent at Lassa about the end of the 17th century

The LAMA states that there are about forty books or works written in Tibet, on medicine, besides the five volumes in the Stan-gyur collection, and the scattered occasional instructions on medicaments in the Kah gyur

The chief medical school in Tibet is at Chák-phuri (ལྕགས་ཕུ་རི) a monastery at or near Lassa There are also two others, in middle Tibet, of some repute, called Cháng-Zúr (བྱང་ཟུར).

FIRST PART

This is entitled རྩ་བའི་རྒྱུད, *r*tsa-vahi-*r*gyut the root or basis of the (medical) tract It is divided into six chapters

First Chapter

In this is described how CHOMDANDAS (SHAKYA) transforming himself into the shape of a chief physician, in a forest of medical plants, delivered his instructions, in a superb palace in the presence of gods, sages (or *Rishis*), and a large train both of heretic and orthodox hearers

Second Chapter

He (SHAKYA) addressed his audience thus —"Assembled friends! be it known to you, that every human creature who wishes to remain in health, and every man who desires to cure any disease, and to prolong life, must be instructed in the doctrine of medicine Likewise, he that wishes for moral virtue, wealth, or happiness, and desires to be delivered from the miseries of sickness, as also, he that wishes to be honoured or respected by others, must be instructed in the art of healing" Then one of the hermits or Rishis (དྲང་སྲོང-Drang-Srong) expressing his desire of promoting the well-being of others, requested his advice as to the manner in which he might become instructed in the doctrine of medicine Then the teacher (SHAKYA) said (or commanded)" He must be instructed in the four parts of the medical science, which are the

རྩ་བའི་རྒྱུད — ; བཤད་པའི་— ; མན་ངག་གི་—; and ཕྱི་མའི་རྒྱུད

root or theory, explication, instruction, and lastly manual operation, farther, he must be instructed in the eight branches of healing, viz 1, the curing of the whole body, 2, of particular diseases, incident to children, 3, to women, 4, the curing of diseases caused by evil spirits, 5, of wounds made by a knife, spear, &c, 6, of all sorts of venomous or poisonous infections, 7, of the infirmities of old age, and 8, the increasing of virility in men These are the principal divisions of the whole medical treatise

The number of chapters in the four parts of this medical tract, amount to 156.

In the explanatory part, there are 11 places or sections, and 31 chapters, in the instructive part on cures or remedies for each specified disease, there are 15 circumstances and 92 chapters,—the last part has four divisions and 27 chapters

Third Chapter

The theory of the human constitution is illustrated by a similitude taken from the Indian fig-tree (ཤིང་ ཕྱ་ངན་ཨེ་ཏ) Thus, there are three roots or trunks, thence arise nine stems, thence spread 17 boughs or branches, thence 224 leaves, two blossoms, and three fruits The explication of the simile as applied to the states of the body The single root or basis of diseases, the stems, branches, and leaves arising thence, taken or considered in a healthy and in a diseased state Distinctions with respect to wind, ditto, with respect to bile, as also to phlegm, their respective offices, operations or influences

There are seven supports of the body on which life depends, the chyle, blood, flesh, fat, bone, marrow, and semen Description of the three sorts of excretions or sordes of the body, ordure urine, and sweat

The three generative causes of disease are lust or ardent desire, passion or anger, dulness or ignorance By the first is caused wind, by the 2nd, bile, by the last, phlegm The accessory causes of disease are four 1, season with respect to cold and heat, 2, any evil spirit, 3, wrong use of food, and 4, ill conduct of life

The parts of the body, commonly subject to diseases, are six the skin, the flesh, the veins, the bones, the viscera, and the bowels

The proper places of the three humours are that of the phlegm in the upper part of the body, as the proper place of dulness, in the brain or skull, that of the bile, in the middle part of the body, which is appropriate to anger, and the wind resides in the lower part of the trunk, in the waist and loins, as in its proper place

There are 15 ways or channels through which disease spreads itself The channels of the motion of wind are, the bones, the ear, skin, heart, artery, and the guts The blood, sweat, the eye, the liver, the bowels, are the ways or vehicles of bile The chyle, flesh and fat, marrow and semen, ordure and urine, the nose and the tongue, the lungs, the spleen, and the kidneys, the stomach, and the bladder, are the vehicles for the conveyance of the phlegmatic humour

With respect to the three humours, this farther distinction is made wind is predominant in the diseases of old people, bile, in those of adolescents or youths, and phlegm, in children

With respect to place (or part of the body), wind occurs in the cold parts of the body, bile in the dry and hot parts, phlegm abides in the moist and unctuous parts

The several seasons, in which the diseases caused by any of these three humours prevail, are thus stated diseases, caused by wind, arise commonly during the summer season, before the dawn, and about mid-day Those caused by bile, in autumn, about mid-day and mid-night Phlegm prevails during the spring season, and in the morning and evening

There are specified nine sorts of diseases, in which there is no hope of recovery

On the 12 causes by which any of the diseases caused by any of the three humours, is changed into another, as wind into bile and phlegm, &c

All diseases are classed under two heads heat and cold Those, in which wind and phlegm prevail, being of natural water, belong to cold Blood and bile, being of natural fire, belong to heat The diseases caused by the worms and the serum, belong both to cold and heat

Fourth Chapter On the symptoms of diseases On examining the tongue and urine On feeling the pulse On asking (orally) after the circumstances, how the disease first arose, and its progress,—what pain is felt, what sort of food has been useful or noxious?

Especially with respect to the tongue If the tongue is red, dry, and rough, it is the sign of prevailing wind, if covered with a yellowish white thick substance, it is the sign of bile, if covered with a dim, white, soft, and moist substance, it is the sign of phlegm

With respect to the urine If the urine of the patient is blue, clear like spring-water, and has much spume or froth, it is the symptom of wind, if yellowish red and thick, steaming or vapouring greatly, and diffusing a smell, it is the sign of bile, if white, with little smell, and steam or vapour, it is the sign of phlegm

With respect to the pulse When the physician feels the pulse, if beating greatly upwards it somewhat stops, (if irregular) it is the sign of wind, a quick full beating is the sign of bile, a sunk, low, and soft beating is the sign of phlegm

The physician's 29 questions to the patient about his food, exercise, and the pains or relief felt after having taken such and such a food, made such and such an exertion, &c are here detailed

Fifth Chapter On the means of curing diseases

1 With respect to food

The several sorts of flesh, grain, vegetables, and liquids employed successfully in curing diseases caused by wind Specification of the several sorts of animal and vegetable food, and of soup and liquids or potions, by which bile is cured Ditto of those that are good against phlegmatical diseases

2 With respect to one's conduct of life or exercise

It is good against wind to remain in warmth, and to have a companion with whom one can best agree Against bile to remain in a cool and still place, or undisturbed Against phlegm to cease from exertion or business, and to remain in warmth

3 With respect to medicaments to be used against these three humours

Those against wind are of three different tastes sweet, sour, and saline, and with respect to their efficacy, unctuous, heavy, and soft

Those used against bile are, sweet, bitter, and nauseous bitter —their efficacy, coolness, thinness, and dulness, or bluntness

Those used against phlegm are, hot, sour, and acrid —their efficacy sharpness, roughness, and lightness

Mixtures of medicaments with respect to their tastes, for assuaging pains, and for carrying off diseases, or for purging

1 Assuaging medicaments

Against windy diseases soup, and medical butter (a kind of sirup)

Against bile liquid medicine and powder

Against phlegm pills and powdered medicine (aromatics?)

The several kinds of soup are of bones, flesh, butter, molasses; of wine, &c.

There are specified five kinds of sirup, according to the different principal ingredients, their several applications and effects

2 Depuratory or purging medicaments

In windy diseases a gentle depuratory medicament.

In bilious diseases a purging physic.

In phlegmatic diseases emetics.

With respect to the first there are specified three sorts of depuratory medicaments, the purging medicaments are of four kinds, the emetics are of two sorts.

With respect to physical (or chirurgical) operation, against wind the smearing of the body with butter, &c and cauterising in the Hor (or Turkish) manner. Against bile phlebotomy, and cold water (or bathing in ditto) Against phlegm warm applications, and cauterising

Specifications of the several kinds of cures against wind, bile, and phlegm They amount to 98 (compared to so many leaves) If the physician is skilful and diligent in his application, and the patient obedient and respectful, so will the latter soon be delivered from disease

Sixth Chapter Recapitulation of the three last chapters According to the former metaphor or allegory of the Indian fig-tree, there are three roots (or trunks) 1, the root, place, or ground of the disease, 2, that of the symptoms, and 3, that of the manner of curing

There arise from the first trunk (or root) two stems that of the unchanged state of the body, and that of the changed or diseased state of the body

From the 2nd trunk (or root) there arise three stems, namely those of looking on, feeling, and asking (or of inspection of the tongue and urine, of the feeling of the pulse, and of asking after the circumstances of the disease)

On the 3rd trunk there arise four stems those of the food, of the manner of living or conduct of life, of the medicaments used, and of the operations performed. Therefore, from the three trunks (or roots) their arise nine stems

The number of the boughs or branches

Those branching from the stem of the unchanged body are disease, the seven supports of the body, and the fæces

On the stem denoting the changed or diseased state of the body, there are the following 9 boughs cause of disease, accessory causes, beginning or injured parts, place, way, time of arising (or of the fit), fruit or consequence, causes of transition from one into another disease, the reduction of all diseases to heat and cold

On the stem denoting the symptoms of diseases, there arise the following eight boughs 2 of inspecting the tongue and urine Of feeling the pulse, there are 3 wind-pulse, bile-pulse, and phlegm-pulse And in asking after the circumstances of the disease, there are 3 Altogether eight

On the stem denoting the manner of curing, there arise the following boughs or branches 3 of food or meat, 3 of drink or potion, 3 of the manner of living or of the conduct of life, 6 of physic with respect to taste and efficacy, 6 of the assuaging mixtures, with respect to taste and efficacy, 3 of depuratory physic. There are also 3 boughs of medical (or chirurgical) operations Thus in all there are 47 boughs or branches

The number of leaves (or of leafy branches) issuing from the 47 boughs.

1st On the top of the unchanged stem, the enumeration of 25 diseases

2nd. On the top of the stem denoting the changed or diseased state of the body, 63 symptoms or tokens of indisposition

3rd On the top of the stem of inspection (or examination of the tongue and urine), 6 branches or leaves of inspection

4th On the top of the stem of feeling, three sorts of pulse (or three manners of beating of the pulse)

5th. On the top of the stem of asking the patient about the circumstances of the disease, 29 questions

6th On the top of the stem denoting the food (diet, meat, and drink or potion) of the patient, there are the enumeration of such, as 14 in respect to wind, 12 to bile, and 9 to phlegm

7th On the top of the stem of the conduct of life, 6

8th On the top of the stem of physic nine tastes and nine efficacies are enumerated, together 18, 3 kinds of soup or broth, 5 kinds of medical butter or sirup, 4 kinds of potions, 4 kinds of powders, 2 kinds of pills, 5 kinds of powdered aromatics, 9 sorts of depuratory application Total, =50 kinds of physic

9th On the top of physical (or chirurgical) operations, 7 leafy branches

A summary exhibition of the above specified leaves

1 On the trunk denoting the place and ground of diseases, there are 188 leaves

2 On that denoting the symptoms, 38

3 On that denoting the manner of curing, there are 98 leaves Altogether making 224

There are two blossoms health and a long life

There are three fruits moral perfection (or good morals), wealth, and happiness

These are the contents of the six chapters of the first part of this medical tract

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SECOND PART

There are four things to be treated of in the doctrine of curing or healing 1, What is to be cured or healed? 2, With what is it to be cured? 3, In what manner is it to be cured? 4, By whom is it to be cured?

1st Chapter —With respect to the first question, What is to be cured? the answer is the disease in the human body 2, By what means By diet or regular food, exercise, medicament, and by chirurgical operation 3, In what manner is it to be cured?—so that the patient recovering from his sickness, may remain long alive To this place belongs the examination of the symptoms, the rules of curing, and the manner in which the cure is performed The contents of this part of the treatise are reduced to four roots, and to 11 branches or minor parts

2nd Chapter —Cure is ordained for the well-being of the body The origin or generation of the body Cause, and accessory causes thereof Tokens or signs of birth

The cause of the generation of the body is stated to be the father's seed, the mother's blood, and the arising of consciousness If the first be predominant, there will be born a son, if the second, a daughter, if both are equal, then a hermaphrodite Should it happen that the blood be formed into two masses, then twins will be born

Out of the semen are formed the bone, the brain, and the skeleton of the body Out of the mother's blood are generated the flesh, blood, heart, with the other four vital parts, (lungs, liver, spleen, kidneys,) and the six vessels or veins. From the soul or vital principle arises consciousness through the several organs.

After the body has been thus conceived, the cause of its increase is in the two veins on the right and left sides of the womb, in the small vessel containing the mother's blood for menstruation, and in the chyle formed from the mother's food, which successively descending into the womb, concurs to the coagulation

or union of the semen, blood, and the vital principle, and to their increase, in the same manner, as water is conveyed, by certain canals, from a watering pond, to a field, for the production of corn

The body, by the agitation of the (inward) air, being changed during 38 weeks, goes on continually increasing, for nine months

The continual increase of the fœtus, or embryo, is thus In the 1st week, it is like a mixture of milk and blood In the 2nd week, growing somewhat thick, it is of a ropy or tenacious nature In the 3rd week, it becomes like curds. In the 4th week, from the form, which the embryo takes, is conjectured whether it will be a son, daughter, or hermaphrodite In the 1st month, the mother suffers both in her body and mind several disagreeable sensations

In the 2nd month, in the 5th week, the navel of the body is first formed In the 6th week, the vital vein (or artery), depending on the navel In the 7th week, the forms of both eyes appear In the 8th week, in consequence of the forms of the eyes the form of the head arises In the 9th week, the shape of the upper and lower parts of the trunk or body is formed

In the 3rd month, in the 10th week, the forms of the two arms and sides (or hips) appear In the 11th week, the forms of the holes of the nine organs become perceptible In the 12th week, the five vital parts (heart, lungs, liver, spleen, veins,) are formed In the 13th week, those of the six vessels

In the 4th month, in the 14th week, the marrows in the arms and thighs are formed In the 15th week, the wrists of the hands and the legs of the feet are perceptible In the 16th week, the 10 fingers and the 10 toes become visible. In the 17th week, the veins or nerves, connecting the outer and inner parts, are formed

In the 5th month, in the 18th week, the flesh and fat are formed In the 19th week, the tendons or sinews and the fibres are formed In the 20th week, the bone and the marrow of the feet are formed In the 21st week, the body is covered with a skin

In the 6th month, in the 22nd week, the nine holes of the organs are opened. In the 23rd week, the hair on the head and on the body, and the nails commence to grow In the 24th week, the viscera and vessels become entirely finished, and then pleasure and pain is felt In the 25th week, the circulation or motion of air or wind commences In the 26th week, the memory of the mind begins to be clear

In the 7th month, the 27th to the 30th week, the whole body comes to entire perfection, or is completely formed

In the 8th month, from 31st to 35th week, the whole body, both with or without, greatly increases

In the 9th month, in the 36th week, there arises a disagreeable sensation in the womb In the 37th week, there arises a nauseous sensation In the 38th week, the head turning to the entrance of the womb, the birth takes place But, though the months are completed, yet, on account of the mother's menstruation, and of wind, birth may for some time be delayed

Farther it is stated, that if the right side (of the pregnant woman) is high, and the body light, there will be born a son, if the left side is high, and the body heavy, then a daughter, if they both are in an equal state, an hermaphrodite And if the middle or both the sides are high, then twins will be born.

The tokens and circumstances of approaching birth are then described

(This may be seen at large, in the Kah-gyur, in the work entitled དགའ་བོ་མངལ་འཇུག "d,Gah-vo m,ñal h,jug" Nanda entering into the womb)

3rd Chapter —The several members of the body are likened to certain things, 32 in number

The manner of the existence of the body, under four distinct heads 1 The quantity (in measure or weight) of the several constituent parts of the body, and the manner of existence of those parts on which the body depends 2 The state of the veins and nerves 3 On the nature of diseases, the enemies of the body 4 The holes or openings for the circulation of the air, &c.

With respect to the 1st

1 The quantity of the wind or air (in the body) is equal to one full bladder that of the bile to the quantity of ordure once discharged, that of the phlegm—to one's three two-handfuls (the two hands three times full), that of the blood and ordure to seven ditto, that of the urine and serum to four ditto, that of the grease and fat to two ditto, that of the chyle and the semen to one handful, that of the brain to a single handful, that of the flesh=500 hand-fuls, (one handful being as much as can be enclosed once in a single hand) Women have an excess of 20 more on account of their thighs and breasts

There are 23 sorts of bones, in the back-bone, 28 are distinguished There are 24 ribs, 32 teeth, 360 pieces of bones There are 12 large joints of limbs,—small joints, 250 There are 16 tendons or sinews, and 900 nerves or fibres, 11,000 hairs on the head, 11 millions of pores of the hair on the body There are five vital parts (or viscera) (as the heart, lungs, liver, spleen, and the reins or kidneys), six vessels, and nine openings or holes —In *Jambu-dwipa* the measure of a man's height is one fathom or four cubits—deformed bodies have only 3½ cubits, measured by their own

With respect to the 2nd section, showing the state of the veins There are four kinds of veins or nerves 1, that of conception, 2, of sensation, 3, of connexion, and 4, that of vitality

The 1st From the navel there arise or spread three veins or nerves, one of them ascends to the brain, and is acted on by the dull part of it, generating the phlegm in the upper part of the body Another nerve (or vein) entering into the middle, forms the vital nerve, and depends for its existence on the vital nerve of passion and blood, that part of it, which causes bile, resides in the middle The third nerve (or vein) descends to the privy parts, and generates desire both in the male and female That part of it, which produces wind, resides in the lower extremity

The 2nd There are four kinds of the nerves of existence or sensation

For rousing (or exciting) the organs, in their proper place, there is in the brain a principal nerve, surrounded with 500 other smaller ones Another nerve for making clear the organ of recollection or memory, resides in the heart, surrounded with 500 other smaller ones

That nerve, which causes the increase and renovation of the aggregate of the body, resides in the navel, surrounded with 500 other smaller ones

That nerve, which causes the increase of children, and descendants, resides in the privy member, together with 500 other smaller ones—and comprehends or encompasses the whole body

The 3rd The nerve of connexion consists of two kinds, white and black. There are 24 large veins (or nerves), which, like as so many branches ascending

the principal stem of the vital principle, serve for increasing the flesh and the blood. There are eight large hidden veins or nerves for making the connexion of the diseases of the viscera and vessels

There are 16 conspicuous veins connecting the outward limbs, and 77 others spreading from them, called [illegible] bleeding veins (that may occasionally be opened to let out blood)

There are 112 hurtful or pestilential veins (or nerves), of a mixed nature, there are 189 others Thence originate 120 in the outer, inner, and middle parts, that spread into 360 smaller ones Thence smaller ones encompass the body as with a net-work

There are 19 strong working nerves, which, like roots, descend from the brain, the ocean of nerves, from among them there are 13 that are hidden, and connect the intestines—six others, connecting the outward parts, are visible, from them spread 16 small tendons or sinews

There are three vital nerves (or veins) in a man The one encompasses both the head and the body, the second, associating with respiration, moves accordingly, the third is the principal, and connecting the veins or canals, for the circulation of air and blood, is occupied with generating or increasing the body, and being the vital nerve, is called, by way of eminence, the artery or the principal vital nerve.

With respect to the third point

Diseases of consequence happen in the flesh, fat, bone, tendons, nerve, intestines, and veins

Such diseases are counted in the flesh, 45, in the fat, 8, in the bone, 32, in the tendons or sinews, 14, in the intestines, 13, in the veins, 190 On the head, there are 62, on the neck, 33, in the trunk of the body, 95, in the four hanging members (two hands, two feet), 112 Thus important diseases are reckoned 302, of which 96 are said to be very dangerous, which cannot be cured by any expence or skill There are 49 that are dangerous in a middle degree, but which may be cured by learned physicians The rest may be cured by others also, since they are of no great consequence, though they also be reckoned among diseases of magnitude

With respect to the fourth point

Of the several orifices or passages for the conveyance of air, blood, drink, and food, both within and without, are enumerated 13 in males and 16 in females.

Through inconvenient food and exercise, these passages being hurt, there arises a distemper of the body, by the humours being either too much increased, issued, or hindered, or by taking wrong direction, confusion is produced When the passages are clean, and free from any hurt, then the body is in a healthy state

5th Chapter—Characteristic description of the body There is a two-fold division 1, Those parts which are subject to injury (the body) 2, Those things by which they are injured (bad humours or diseases). First, of those that are subject to injury These are thus distinguished the supports, (or those parts which keep the body together), seven in number, as, the chyle, blood, flesh, fat, bone, marrow, and semen Excrements, as ordure, urine, and sweat, also the dirt of the teeth, and under the nails, and the impurity issuing from other openings or passages

1stly. The office of the seven supports of the body, and of the three excrements, is thus described

The meat and drink, after being digested in the stomach, are changed into chyle and fæces. These turn into ordure and urine, that is, for the nutrition of the body, by increasing the blood The blood preserving the moisture or humidity of the body, keeps up life, and increases the flesh. The flesh covering and cleansing the body, both within and without, produces the fat This makes the whole body unctuous, and causes the increase of the bone This supports the body and increases the marrow. This improves the essential sap of the body, and produces the semen virile. This conduces to the well-being of the whole body, and to the production of a new one

The service, rendered by the fæces, is the ordure serves for the support of the bowels, guts, &c By urine, morbid humours are carried off, and it serves also for a support of the thinner fæces, and carries off the putrid thick sediments

The office of sweat is to soften the skin, and to change the obstructed pores of the hair of the body

Fire-warmth ཨ་ཏཾ is the common gentle warmth, or heat, of the whole body The warmth of the stomach is the principal cause of the digestion of meat and drink of every kind If this warmth is in good state, the digestion of meat and drink is easy, no diseases then arise, the lustre of the face, the chyle, the supports of the body and life, then increase Therefore, the warmth of the stomach must be kept up, (or if lost, must be restored,) with every endeavour

The manner in which meat and drink are changed Whatever is eaten or drunk, is carried into the belly or stomach, by the vital air or wind, afterwards, by the aid of phlegm, it comes into fermentation of a sweet taste, and increases the quantity of phlegm Afterwards, being digested by the aid of bile, taking a hot and sour taste, it produces bile Afterwards, by the aid of the air or wind that conveys an equal heat to the whole body, the dregs or fæces being separated, and taking a bitter taste, it generates thin wind The fæces being changed into thick (or solid) and thin (or fluid) parts, become ordure and urine

The chyle, after having passed by nine veins from the stomach into the liver, it becomes or changes into blood, afterwards, successively, it is transformed into flesh, and the seven supports of the body

2ndly The hurtful things or bad humours These are three wind, bile, and phlegm, each with a five-fold division

1. Of Wind The life-keeping wind or air resides in the upper part of the head, that which operates upwards, has its place in the breast, that which pervades or encompasses all, resides in the heart, that which communicates or conveys an equal heat to the body, has its seat in the stomach, that which cleanses downwards, abides in the lower part of the trunk

2 Of Bile The digesting bile resides in the stomach, between the digested and indigested part, that which forms the chyle, resides in the liver, that which prepares or increases, in the heart, that which assists the sight (or causes to see), in the eye; that which gives a clear colour, resides in the skin

3 Of Phlegm. The supporting phlegm resides in the breast, the masticatory, in the indigested part, the tasting, on the tongue, the refreshing (or that makes contented), in the head, the conjunctive or uniting, resides in every juncture (or joint)

The characteristic signs of the above-specified humours—that of wind; roughness, lightness, cold, smallness, hardness, and mobility.

That of bile, unctuousness, sharpness, lightness, foulness, depuratory moisture

That of phlegm unctuousness, coolness, heaviness, and dulness, softness, or gentleness, steadiness, adhesion, passionateness

6th Chapter —On the works or action of the body These are the body, the speech, and the mind Virtue, vice, and undetermined cases The five organs occupy their own place The body is divided into basis (ground or support), age, nature (or constitution), division of diseases The basis has a triple division Age also has the same number, that of nature or native disposition, has seven With respect to disease, the distinctions are indisposition and absence of morbid state

7th Chapter —On the tokens of destruction (or approaching death) of the body 1 Tokens of a far distant death 2 Ditto of a near one 3 Uncertain, and 4, Certain tokens of death Distant tokens are any envoy (of death), dream, and change (by age), &c , the near tokens are distinguished into near and very near Uncertain tokens, as, when after recovering from a sickness, one may live yet many years Certain tokens, as, when the disease is incurable

A physician should be well acquainted with the tokens of death, that he may know whether the patient be curable or incurable, and to perform his medical service accordingly

8th Chapter —On the increasing and decreasing state of sickness. Here is treated of the causes and accessory causes of the disease, the manner of its origin, the diseased part, the character and distinctions of the importance of each

First. The causes are proximate, and remote

9th Chapter —There are three accessory causes that depend on the primary cause the originating and spreading, the gathering together and arising, and the taking away of the disease

10th Chapter —On the manner in which any disease takes place in the body.

11th Chapter —On the character of diseases, as, an increasing, diminishing, and a perplexed, disease The causes of which are to be sought in the too great or too small quantity of the three humours, of the seven supports of the body, and of the fæces

12th Chapter —Division of diseases, with respect to the cause, the individual, and the kind of disease. With respect to the cause this is attributed to the vicious three humours of this life, to the consequence of immoral actions in former generations or lives, and to a mixture of both With respect to the individuals they are, man, woman, child, old persons, and men of every description The several diseases peculiar to each are enumerated The number of the kinds of the common diseases is stated to be 404, which are divided or distinguished out of several respects. As with respect to the vicious humours, principal humour, place or injured part, and the kind of disease, 42 belong to wind, 26 to bile, 33 to phlegm Thus with respect to the humours, 101 divisions are made, and so on, with respect to the other points also, many distinctions or classifications are enumerated, each amounting to 101.

13th Chapter.—With respect to the conduct What course of life is to be taken, (to be free from disease) 1. continually, 2, at certain periods, and 3, occasionally, or as circumstances may require. The two first are treated in the

next two chapters 1, continually to be done are worldly affairs and religious exercises or occupations, first, the leaving off every immoral action committed by the body, speech, and the mind, and the doing of such things as are agreeable to these, in every circumstance of life as in eating, walking, sitting, mounting a horse, sleeping, &c

2, Religious occupations are the exercise of moral virtues, and the desisting from the ten immoral actions

14*th Chapter* —On the periodical conduct of life, according to the different seasons, (as the first and last part of winter, the spring, the hot season, summer, and autumn,) with respect to diet, exercise, medicine, and chirurgical operations.

15*th Chapter* —On the circumstantial conduct of life, with respect to several cases, teaching that, one should not obstruct hunger and thirst (or abstain from meat and drink), not hinder yawning or gaping, sneezing, breathing, coughing, (or ejecting phlegm,) spitting, sleeping, nor any of the natural discharges, since the obstruction or hindrance of them may give rise to any disease, of which several cases or examples are enumerated

16*th Chapter* —The manner of using meat and drink 1. The several kinds of food, and the manner of using them 2 Several kinds of food that do not agree, and therefore may not be used together 3 Temperature to be observed.

For food are used, grain (or corn), flesh, butter, vegetables or greens, and dressed victuals There are two kinds of grain 1, growing in ears, and 2, in pods (as pulse) Flesh or animal food of eight kinds or sorts Several kinds of unctuous or oily substances, as, butter, oil expressed from grains, kernels, fruits, berries, and trees or shrubs, grease, fat, marrow, &c. To vegetable or green things belong potherbs, &c To dressed victuals or meals belong boiled rice, soup, &c Drinkable things are milk, water, wine, &c

17*th Chapter* —Enumeration of several kinds of food that it were dangerous to take together, as, fish and milk, &c

18*th Chapter.*—On the proper measure of food to be taken, or on temperance in meat and drink

19*th Chapter.*—On pharmacy, or the preparing of medicaments for healing any disease. Taste of medicament, efficacy, digestive quality, mode of composing, &c appropriate to any specified disease

20*th Chapter.*—On materia medica, the efficacy of every simple medicament. The materials for medicaments are precious and natural stones, earths, woods, vegetables, and those obtained from animals In the text, and in another quoted work, 915 articles are enumerated, and stated of each to what disease it may be applied especially, as a remedy

21*st Chapter* —Specification of the classes of medicaments, their preparation and application to specified diseases.

22*nd Chapter.*—On the five sorts of (chirurgical) instruments, employed in trying or sounding any disease, in cutting, &c.

23*rd Chapter* —That one may remain in health and ease, rules are prescribed to be observed

24*th Chapter.*—Discrimination of the humours as the cause of any inward or outward disease

25*th Chapter* —When the former are insufficient, it is taught, to seek it in the vicious inclination of the mind.

26*th Chapter.*—To exhibit medical help, when the disease may be healed, and to give it up, when it cannot be cured.

27th Chapter —On the manner of curing diseases How? by whom? with what? The measure or length of time of curing

28th Chapter —Detailed description of the curing of diseases.

29th Chapter —Common and peculiar mode of curing diseases

30th Chapter —How to cure wind, bile, phlegm, is separately exposed or taught.

31st Chapter —The requisite qualities in a physician, that he should be well acquainted with the theory and practice of medicine, and be an impartial, upright, good-hearted man

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Third Part.

Containing a full explanation of Diseases

Chapter 1 Exhortation to the teacher (Sha'kya) to deliver a treatise (ཁྲིད) or oral instruction on the manner of curing diseases

2 The curing of diseases arising from wind (or windy humours) There are five distinctions 1, causes, 2, accessory cause and effect, 3, division, 4, symptoms, 5, manner of curing (diseases arising from wind)

3 In the curing of diseases arising from (or caused by) bile, there are the following distinctions 1, cause, 2, accessory cause and effect, 3, division, 4, symptoms, 5, manner of curing, 6, and stopping or hindering its progress.

4 In the curing of diseases caused by phlegm (or phlegmatical humours), are considered cause, accessory cause and effect, division, symptoms, and manner of curing

5 In the curing of diseases caused by the gathering together of the three humours (wind, bile, phlegm,) and of blood, there are the following distinctions or considerations cause, incident or accessory cause and effect, place, time, kind or genus, symptoms, manner or mode of curing, and the stopping of it for the future

6. In the curing of indigestion, the root (or primary cause) of inward diseases, there are the following distinctions or sections cause, incident or accessory cause and effect, manner of its arising, division, symptoms, remedy or mode of curing.

7 In the curing of a swelling (or a hard conglomeration or excrescence), there is treated of cause, incident, division, place, manner of arising, symptom, mode of curing it.

8 The curing of white swellings, a kind of dropsy. Here are considered cause, incident, division, symptom, mode of curing

9 In the curing of another kind of dropsy (ཉོ་ཐ་ཆེན) there are the same distinctions as before

10 The curing of dropsy is taught, by exposing the cause and incident, division, manner of arising, symptom, mode of curing, stopping or cessation.

11 In the curing of phthisis or consumption of the lungs, རྒྱ་ནག ཚད་ཆེན་པོ་, ཆད་ཐུང་པ, there are the following distinctions cause, and accessory cause or effect, division, symptom, mode of curing And thus there are six chapters on curing inward diseases

12. In curing feverish diseases (where heat prevails) in general, there are the

following distinctions cause and incident, nature, name, symptom, mode of curing

13, 14 Farther explanations on the causes of the heat and cold, in fever

15 In the curing of a fever, in its beginning, or where heat has not yet taken the upper hand, there are enumerated the following distinctions cause and incident, nature, name, division, symptom, mode of curing

16 In an increased or burning fever, the same distinctions are as before, except a trifling division

17 to 20 On curing several kinds of fever, such as are the sly, hidden, inveterate, and the mixed ones

21 The curing of inflammation of any hurt or wounded part of the body, with several distinctions, and that of inward and outward hurt the inwards are, the viscera and the vessels, the outward parts are, the flesh, bone, marrow, tendon, and fibre

22 The curing of heat or fever (arising from the contest between wind, bile, and phlegm), in which the mental faculties are troubled, with several distinctions to be considered, and so there are 11 chapters on curing fever (heat and inflammation)

23 On curing epidemic maladies or infectious diseases, with several distinctions and divisions, as; བལ་ནད a kind of pestilence of Nepál

24 On curing the small-pox cause and effect, definition of small-pox, distinction, symptom, mode of curing, distinction into white and black variolæ, each having three species

25 The curing of infectious diseases affecting the bowels (colic), with several distinctions, purging the viscera and the lower vessels, affecting with greater or less vehemence, and so there are eight kinds of diseases affecting the bowels

26 The curing of swellings in the throat (or of ulcers and inflammations), and infective diseases, as the cholera, ཁཁ་པ་དང་ལྷོ་ཁ་པ the first has 4, the second 11, subdivisions, or minor distinctions

27 With respect to catarrh, are considered cause and incident, kind, symptom, mode of curing And so are five chapters on infectious diseases, ཟས་ལ་ནད, to which belongs the cholera morbus also, ཁ་ཉན་ཐུན་ལྟ་ཁ । ཀ་ལྟ་ཁ

28 In curing the upper part of the body, the head occupies the first place. Here are considered cause, circumstantial accident, distinction, symptom, mode of curing There are eight distinctions, as wind, &c

29 In curing the diseases of the eyes, are considered cause, incident, division, symptom, mode of curing, with 33 distinctions of opthalmic diseases.

30 Diseases of the ear, cause and incident, or accessory cause and effect, division or distinction, symptom, mode of curing Distinction into disease of the ear, and deafness, that has six, this four, kinds

31 Diseases of the nose cause and incident, division, symptom, mode of curing, there are five divisions or distinctions

32 In the curing of the diseases of the mouth, there are to be considered cause and incidents, division, symptom, mode of curing There is a six-fold division, as, the lip, the gum, &c There are several distinctions of diseases, as six of the teeth, five of the tongue, six of the palate, and seven of the throat

33 In curing the diseases of goitre or swelling in the fore-part of the neck, are considered cause and incident (or accessory causes), distinction, symptom, cure

or remedy There are eight sorts of goitre, as those arising from wind, bile, &c. Thus six chapters are on curing diseases in the upper part of the body

Now follows the curing of diseases affecting the viscera, and the entrails or vessels

34 In curing the diseases of the heart, there is treated of cause and incident, division, symptom, and remedy There are seven distinction of diseases in the heart, as the throbbing or palpitation of the heart ཟློང་འགྱོལ་ &c &c.

35 In curing the diseases of the lungs are considered cause, division, symptom, remedy There are eight distinctions of diseases

36 In curing the diseases of the liver, are treated of cause, division, symptom, remedy There are 18 distinctions of diseases

37 In curing the diseases of the spleen or milt, four things come into consideration There are five kinds of diseases, as inflammation, &c

38 In curing the diseases of the reins or kidneys, there are four considerations, with seven kinds of diseases, as wind in the reins, &c

39 In curing the diseases of the stomach, or the pit of the stomach, there are likewise four things to be previously considered And first, 16 kinds of diseases, as heat, cold, &c and again five kinds, as wind, &c

40 In curing the diseases of the intestines or bowels are considered four things, as cause, &c with the distinction of five kinds of diseases

41 In the curing of the gut of the entrails or bowels, are considered symptom and remedy, with five distinctions of diseases, as cold, puffing up, &c Thus eight chapters are on curing the diseases of the viscera and vessels ངན་ལྡན.

Diseases of the privy parts

42, 43 In these two chapters for male and female cases are considered: cause, &c four, with nine and five distinctions of disease respectively

This class of disorders is called གསང་ནད (secret disease)

The curing of little diseases (ཕྲ་ནད)

44 In the curing of hoarseness, or difficulty of using the voice, are considered cause, incident, &c. four, with seven distinctions of diseases, as wind, &c

45 In curing aversion from food, or restoring the loss of appetite (ཟོ་ཟ་ འཕྱོ་ཁ) there are considered cause, &c four, with four distinctions of that disease

46 In curing the distemper of continual thirst, are considered cause and incident, &c four, with five kinds of that distemper, as wind, bile, &c

47. In the curing of the hiccup, the disease of yexing (convulsion of the stomach ཕྱི་ཟས་ཐུའི་ནད), are considered cause and accident, &c four, with five distinctions of that distemper, as from meat or food, &c

48 The curing of the difficulty of breathing cause, &c four, with five minor distinctions

49 The curing of a sudden cholic, (ཁྲག་ཕབས, a distemper of the bowels,) are considered cause and accident, &c. four, with three principal, and eleven minor, kinds of that distemper, besides some others that are enumerated, as heat and cold, worms and phlegm, &c.

50 The curings of diseases arising from worms (in the belly or bowels) and insects, are considered cause and accidents, &c. four, with two distinctions inward and outward worms or insects, as belly worms, lice, and nits.

51 In curing vomiting, are considered cause and accidents, &c. four, with four distinctions of that distemper, as wind, &c.

52 In curing purging diseases (or dysentery), are considered· cause, &c. four, with four distinctions of that distemper, &c

53 The curing of obstruction of stools, or of evacuation, four things to be considered, and five kinds of that distemper are enumerated

54 In curing dysury (or difficulty of making urine), is treated of the cause and accidents, &c four, with several distinctions of the kinds of that distemper.

55 In curing the frequent discharge of urine, cause, &c four, with the three kinds of that distemper, arising from phlegm, bile, and wind, phlegm has again 10 distinctions

56 In curing the disease called the "Indian heat," (very dangerous to Tibetans, by causing excessive heat and frequent evacuations, of which many die who visit India,) are considered cause, &c. four, with four distinct divisions of that distemper

57 In curing the swelling or enlargement of the feet, are considered cause, &c four, with four distinctions of that disease

58 In curing the gout སྒྲུམ་བུ are considered cause, &c four, with six distinctions of that painful distemper.

59 In the curing of diseases arising from the serum or watery parts of the blood (ཆུ་སེར yellow water, bad or corrupt humours), are considered the manner of its origin, its division, symptom, mode of curing, with several distinctions

60 The curing of the disease called "the white vein," རྩ་དཀར with several divisions and distinctions

61 The curing of cutaneous diseases Of these there are several divisions and distinctions.

62 The curing of miscellaneous diseases of the smaller kind such as contraction or sinking of the sinews, dysentery, vomiting, any hurt caused by fire, hurt or wound made with a needle, or when a needle or the iron-point of an arrow happen to be swallowed, choaking or suffocation, on the stopping of any thing in the throat, as, a beard of corn, bone, fish-prickle, the entering or swallowing in of a spider or scorpion, intoxication, stiffness of the neck, ill smell of the body, hurt of the hands and feet caused by cold and snow, the creeping of any insect into the ear, the swelling of the teat of a woman The curing of all such diseases is called the cure of small diseases Thus there are 19 chapters on minute diseases

The healing of wounds, sores, or ulcers.

63 The curing of ulcers (འབྲས) here are considered cause, &c. four, with several distinctions

64. The curing of the hemorrhoids (piles or emerods in the fundament, གཞང་འབྲུམ) cause, &c four, with six distinctions

65. The curing of St Anthony's fire, (any swelling full of heat and redness, མེ་དཔལ) cause, &c four, with several distinctions, and the places (or parts) where generally they occur.

66 The curing of the Surya disease (སུར་ཡའི་ནད) affecting the lungs, liver, &c its beginning, &c four, with some distinctions.

67 The curing of cancerous or virulent bad sores or ulcers. cause, &c. four, with eight distinctions.

68 The curing of the swelling of the testicles (ཁྲོན་ཁ་ནས) cause, &c four, with six distinctions

69 The curing of a disease in the foot and thigh, called Kángbám, (ཤང་ཨབམ or enlarging and corruption of the feet, &c a painful disease in the bones, accompanied with inflammation, and blue colour of the skin cause, &c four, with several distinctions.

70 The curing of the ulceration in the perineum cause, &c four, with some distinctions

71 The curing of diseases incident to infant children, with the description of several superstitious customs or practices which are performed at the birth of a child, as examination of the time at which it was born, whether it is lucky or unlucky, imparting of the benediction, the cutting of the umbilical cord, the making it live long, the making it suck, the time, &c &c

72 The enumeration of several diseases common to infants and children · cause, &c four, and the mode of curing them

73 The curing of diseases caused by any (supposed) evil spirit, 12 kinds of such diseases symptoms, and remedy

Thus three chapters are devoted to the diseases of infant children

Then follow, on curing the diseases of the female sex. These distempers are thus distinguished general, peculiar, and vulgar, or common

74 On curing the diseases of the female sex, in general, are considered cause, &c four, with two distinctions, originating in the blood and wind

75 The curing of the particular diseases of women cause, &c four, with many distinctions, as with respect to the several humours, of which they arise

76 The curing of the common or vulgar diseases of women, with the circumstances of child-birth

On curing diseases caused by evil spirits

77 The curing of diseases caused by a ghost (or evil spirit), of which there are 18 kinds enumerated, from among the Suras and Asuras. Here are considered cause and incident, division, symptom, and remedy

78 The curing of insanity or madness cause, &c four, with seven distinctions, as it is caused by wind, bile, &c

79 The curing of a kind of insanity called "forgetfulness" (lunacy ?) enumeration of its several kinds, the symptoms, and the remedies

80 The curing of palsical diseases, and the telling of the periodical time of their occurrence, the symptoms, and the remedies for preventing their recourse

81 On the curing of diseases, in which the body is infested with cancerous ulcers, is eaten away and dissolved considered cause, &c nine, with 18 distinctions respecting its different kinds, and the places (or parts) which are generally affected

The above five chapters are on such diseases as are supposed to be caused by the influence of some malignant demon

82 On the curing or healing, in general, of wounds, made by any kind of weapon or tool Here into consideration come, 1, cause, 2, accessory cause or incident, 3, nature (of wound), 4, definition or description (of the wound), 5, its name, 6, place, 7, division, 8, symptom, mode of curing or remedy, excision or cutting out, cicatrizing

83. The curing of wounds on the head, here are considered the manner of its being, examination of the injured part, manner of curing, recovering, or being overpowered (ལྟེ་བ་ནས་ཏེ)

84 The curing of wounds on the neck or throat, where the bone, vein, or nerve, and the tendon or sinew come into consideration

85 The curing of wounds on the upper and lower parts of the thumb of the body, manner or that of being, symptom, remedy, healing

86 The curing of wounds on the hanging members (arms and legs), the knowing the importance or consequence of, &c symptoms in general, mode of curing, or restoration

Thus four chapters were on curing wounds, henceforth the curing of poison, or the remedies against poisoning

87 The curing of injuries caused by artificial or prepared poison Here are considered the kind of poison, entrance or infection, quality, the manner of its spreading or prevalence, remedies employed, final cessation or remains

88 The curing of simple poison, and of poison in the flesh With respect to the first cause, symptom, remedy, in the second case, two points more come in consideration

89 The curing of real or material poison Two cases 1, spreading, and 2, not spreading (སྲོ་བདོ་ངང་མི་ཕྱེ་བ)

These three chapters were on curing injuries caused by poison

90 On curing the weakness of old age, or procuring strength to weak, old men Emoluments, place, recourse to, remedy

91, 92 On the means of increasing the power or vigour in men

Here ends the summary extract of the 92 chapters, on the instruction of curing diseases

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FOURTH PART

Which contains the explanation of the practical part of Medicine

Chapter 1 The examination of the pulse, wherein 13 cases are enumerated on the character of the distemper

2 The inspection of urine, wherein, as it is said, the vicious state of the whole body may be seen, as in a mirror

Thus two chapters are on examining the pulse and urine

Afterwards, when the character and name of the disease has been found out, what sorts of medicaments are to be administered, is exposed

3 First liquid medicines, of which there are 51 for curing inward heat, and 23 for assuaging cold fits or ague Together there are 77 sorts of liquid medicine When by these there is no remedy, further is an

4 Enumeration of powdered medicine, or medicaments in powder, of which the mixture is stated to amount to 96, for assuaging the heat of any distemper; and 69 against cold fits Both together=165 When they afford no relief, there is taught of another remedy,

5 Physic or medicaments in pills, of which the different kinds of mixture amount to 22.

6 The several kinds of sirup, (a kind of mixture) are described or taught, of which 15 are for assuaging heat, and five against cold fits Both together=20

For procuring strength to the body, and for drawing out an inveterate disease.

7 Is taught of a mixture, called medicinal butter (ཉན་ས།) consisting of

several ingredients, of which there are 14 sorts for curing heat, and nine for taking away cold fits Both together = 23

8 13 kinds of mixture of calcined powder, for curing an ague caused by a too much abundance of phlegm

9 17 kinds of mixture or syrup, especially for the purpose of assuaging heat

10 19 species of mixture of medicinal wine (or spirituous beverage), are enumerated, for curing diseases, in which wind prevails

11 A mixture, as a remedy against any inveterate malady whatever, prepared of precious stones, for curing the diseases of princes, and of opulent men One against heat, and 11 against cold, eight against both, together=20

Since men, in general, cannot have precious stones required for such a mixture for curing diseases, in the

12 Is taught of such vegetables or plants that are procurable by all, of which the several mixtures amount to 28 for curing heat, and 14 for assuaging cold fit

Thus taking together all assuaging remedies from the liquid to the vegetable medicines, there are 418 So much of the assuaging remedies When they are insufficient, in the

13 Is taught of purging or deparatory medicines in general

14 Of purging medicines operating downwards, for carrying away corrupt blood, bile, and the relics of other diseases There are three kinds of such purging (or deparatory,) medicines, operating gently, moderately, and strongly, of which all there are 82 species

15 For carrying upwards or ejecting the remains of such diseases, as belong to the phlegmatical kind here vomits are prescribed, of which there are eight of the stronger, and eight of the gentle kind, both=16

16 A composition of medicine, for cleansing or purging the nose, five of the gentle, and two of the strong kind

17 Elixirs or extracted juices, for drawing downwards the diseases in the entrails or intestines and guts

18 The same continued and specied

19 Elixirs or mixtures for cleansing the veins, (or deparatory elixirs for do) Thus seven chapters are on deparatory medicines

If by the above means there is no sufficient relief, in another sutra is taught of other soft and hard remedies

20 How to let blood in such distempers, when heat prevails There are counted 77 veins, of which any may be opened for letting out blood

21 The application of a caustic for curing diseases, when cold, or cold fits prevail

22 The use of a venomous mixture

23 On the use of medical bath, for diseased members

24 On adhibiting medicinal unguents

25 On medicines operating downwards

26 The conclusion Though there be many ways (1,200) of examining the heat and cold prevailing in any disease, they all may be reduced to the following to look on the tongue and urine, to feel the pulse, and to ask (after the circumstances of the beginning and progress of the disease in question)

Thus the remedies adhibited against diseases, though they be counted many (1,200) yet they may be reduced to the following four classes medicament, manual operation, diet, and exercise Medicament is either assuaging or deparatory;

the manual operation, is either gentle or rough, food is either useful or noxious; the exercise is either violent or gentle

Again though there be numbered 360 practical modes of curing diseases, they may be reduced to these three examination of the patient (or of the symptoms of the disease) Rules for curing such and such disease And the manner in which the remedy is applied

There is taught also of preservatives for a physician, to keep himself safe from any malignant infection from a patient

27 Recommendation of this treatise to the care of the audience, by the teacher, (SHAKYA) Classification and moral application of the above enumerated 404 diseases

The volume concludes with an account of the mode in which this treatise on medicine (consisting of four parts) reached Tibet, which is briefly incorporated in the introductory remarks

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II —*Journal of a Tour through the Island of Rambree, with a Geological Sketch of the Country, and Brief Account of the Customs, &c of its Inhabitants* By Lieut WM FOLEY

[Read at the Meeting of the 2nd Oct 1834]

The Island of *Rambree*, or *Yamawaddi** as it is termed by the Burmas, is not without those features common to the whole of Arracan The same high land, covered with a thick and impenetrable jungle, every where presents itself to the view of one approaching the coast, and the eye strives in vain to discover a diversity of feature in some cleared spot, which would indicate the existence of a cultivation only to be found in the interior of the island It was with the view of throwing some light upon the geology of *Rambree* that I prepared this Journal for transmission to the Asiatic Society, a consciousness of my present superficial information on many points connected with the geology of the island would have induced me to reserve this communication for a more favourable opportunity, was I not apprehensive that such a season would never arrive, and that the little leisure I now have at my disposal must of necessity be devoted to duties of a

* In the year 1148, Mugh series, two years subsequent to the conquest of the country by the Burmas, Arracan was divided into four distinct provinces, each subject to a separate jurisdiction They were termed thus, 1 *Dwynawaddi* (Arracan Proper) 2 *Yamawaddi* (Rambree Island) 3 *Megawaddi* (Cheduba) 4 *Dorawaddi* (Sandoway) The proper name for Cheduba is *Ma'ong*. The word Cheduba must have been introduced by the Bengalis, I fancy, for it is unknown to the Mughs. The same may be said of Akyab, which should be called *Chetóua*

[*Rámávati*, *Meghávati* and *Dvárávati*, in Sanscrit See translation of an Inscription in vol. iii page 209, 213 —ED]

Navana Choládhipa.
Terumala Nripálachandra
Navasauri
Páchanara pála.
Námána
Pachamahisu
Kaikinipati
Tondaka Nripati
Tirumala Bhúpa
Padmapta
Raghunátha, an officer of Vijaya Rághava, of *Tanjore*
Terumala ráya
Sri Vijaya Raghunáth, conquered Chonda Khán

TABLE XLIX VALUGUTI RÁJAS *of* VENKATAGIRI, *or Káli mala*

From the MACKENZIE MSS

Pátalmári vetál
Damanaidu, aided in giving Pratápa Rudra the throne of Warangol
Vanamnaidu
Yaradaxanaidu
Sinha manaidu
Madan
Vedagiri naidu.
Kumar madan
Sinham naidu
Pada sinham
Chenna sinham
Anupota, extended sway to Krishna river
Sarva sinh
Dharmanaidu
Timmanaidu
Chiti daxa
Anupota
Madan
Sura
Yachamanaidu, founded *Valúguti* branch. 1804
Chenna Sinh, under Vijyanagar
Nirván ray appa.
Kumara timma naidu
Padakonda naidu
Padakonda naidu II
Chennapa naidu
Venkatádri naidu, whence name of place
Ráyapá
Pennakondapa naidu
Yachama
Kasturi
A D 1600 Yacham naidu, conquered as far as the *Mádura* province
Padayachem
Kumár yachem
Bengar yachem, murdered A D 1696, by Zulfcárkhan
Kumár yachem, died 1747
Bengar yachem, and
Padayachem, 1776
Kumar yachem, adopted
Bengar yachem ditto

TABLE L INDIAN DYNASTIES, *according to* FERISHTA, *stated to be taken from Persian and Sanscrit authorities*

[This list is useful for comparison with those already inserted]

MAHRAJA, descended from Krishna, reigned in Oudh

Line of Mahárájas reigned for 700 years

B C	Feredon, first invasion of India, Málchand reigned in [Malwa.
1429	Kesvarája, invaded Ceylon with aid of Persia
	Manéiraya, built Manèr
1209	Feroz-ra, conquered Panjáb.
1072	Suraja dynasty at Kanouj, where worship of sun introduced
786	Baraja
	Keidar, tributary to Persia
731 (died)	Sinkol, built *Laknauti* (Gaur) in Bengal Persian invasion under Peiranweisa
586 Maharáj,	Kachawa Rajputs of Amber established
540	Keda raja, Rustam slain—Rohatiay built *Rotas*
497	Jaya chand, his minister—a famine
437	Dehlu, built Delhi
397	Fagus, of Kemaon, usurped throne of Kanouj
350	Porus II; resisted Alexander's invasion
330	Sinsar-chand (Sandracottus)
260	Jona, and his line, reigned tranquilly 90 years

1473 Narasinha rao
1490 Vira narasinha raja
Achyuta rao
1524 Krishna deva extended his sway to *Guzerat*, &c
Rama raja, killed in invasion of Nizam Sháh, and Imád ul mulk
1565 Sri Ranga rája
Trimal rajá
Vira Jangat pati
Sri Ranga II
Rámadeva rao
Venkatapati rao
Trimala rao
Ramadeva rao
Sri Ranga rao
Venkatapati, invaded by the Moghuls and fled to *Chandragiri*
Rama rao, recovered a portion of territory
1693 Hari Dás
1704 Chak Dás, his brother
1721 Chima Das
1731 Ráma rája
Gopala rao, son of Chak Dás
1741 Yankatapati
1756 Trimala rao
Sultán Khán took the country in the name of Tipu, and with Vira Venkatapati Ráma raya, the dynasty became extinct, A D 1829

Table XLVII Rájas of Maisur, (*Maheswar or Mysore*)

Their genealogy is traced from the Yadu line of Chandravansa Mck. MSS.

A D
Betta Vadiyar
Chamaraja Vadiyar, son of Yadu
1530 Timmaraja Vadiyar, son of Betta.
Hiriya Chamarasa Vadiyar, his son
Bettatha Chamarasa Vadiyar, do. who had three sons,
1 Timmarája Vadiyar
2 Krishnarája Vadiyar
3 Bola Chamarasa Vadiyar, had two wives, Viryamma and Demayammá
1600 Rája Vadiyar, son of the former, took Seringapatam, 1610
Bettada Chamarasa Vadiyar
Devappa rája Vadiyar, } son of Demayammá
Chama rája Vadiyar, }
Narasa rája Vadiyar, son of first wife of Raja Vadiyar
Chamaraja Vadiyar, his son
Imadi Rája Vadiyar, son of Rája Vadiyar's second wife
1638 Kanthirao Narsa rája Vadiyar, son of Bettada, acquired great power [Chinrayapatan inscript Br ch Mysore
1659 Doda Deva rája Vadiyar, son of Devappa, extended dominion N W
Chikka Deva rája Vadiyar, his son, collected family history
1704 Kanthirao Narsa rája Vadiyar, his son
1713 Krishna rája Vadiyar, do
Chamaraja Vadiyar
Imadi Krishna raja, son of Krishna
Nanja rája Vadiyar, his son
Chamaraja Vadiyar, dethroned by Hyder Ali, Mysore destroyed
1796 Krishna raja Vadiyar, restored by the British

Table XLVIII Paligar Dynasty of Trichanapalli

Terumala Raya, of *Achita* tribe, in *Tennivelly* founded dynasty
Panchákhya
Tondaka.

Chitrabhushana	Mahásena,
Chitrá bhvaja	Satrunjaya
Chitra vayma	Bhimaratha,
Chitrasèna,	Bhimaparakrama
Chitravikrama	Pratápa Mártinda
Udanta	Vikrama Kunjaka
Raja Charámani	Yuddha Kolahala
Rája Sárdula	Atula Vikrama
Kubottunga	Atula Kirtti
Youhana pravíra	Kirttivibhúshana
Rája Kunjara	Vamsasekhara, founded the *Madura* college
Rája Bhayankara	
Ugrasena	Vamsachuramani

Náyak Dynasty—founded by Nagama nayak, an officer of Krishna ráya of Vijayanagar 14 *princes*

1530	Viswanáth
	Krishnapa
	Virapa
	Visvapa
	Kumara Krishnapa
	Kasturi Ranjapa
	Mutu Krishnapa
	Virapa, died 1623
1623	Terumala, or Trimal, 1663
1663	Muta virapa
	Chokanáth, died 1687
1687	Krishna mutu Virapa
1695	Vijaya ranga, under regency of *Mangamál*
1731	Vijaya Kumara, do of *Minaxi ráni* Fort seized by Muhammedans, and *Mádura* became tributary to Nuwab of Carnatic, and afterwards to the British

Table XLVI Rájas of Vijayanagar

From history, inscriptions, and family genealogy, see As Res vol xx *The latter authority in the usual manner, deduces a direct line from* Pandu, *of the Innar dynasty, imperfectly following the Puranic lists to* Chandrabija, *the last of the Magadha rájas, to whom succeeds,*

	Mariu
	Nanda
	Bhutanandi
	Nandili, who has two sons, Seshunandi, and
	Yeshanandi, whose 11 sons, ruling over Bylemdesh, are dispersed by two invaders, Amitra and Durmitra, and seven fled to *Andhradesha*, or
A D	Telingana, where
1031	Nanda, maharaja, erected a kingdom, and founded *Nandapur* and *Warangol*
1076	Chalik raja
1118	Vijaya Ra'ja, founded *Vijayanagar*
1158	Vimala rao
1182	Narasinha deva
1249	Ráma deva
1274	Bhúpa raya, died without issue
1334	Bukka, son of a neighbouring rája, raised to the throne of the Dekhan by Vidyaranya, his *gúrú*
1367	Harihara rao
1391	Deva rao
1414	Vijaya rao
1421	Pundara deva rao, deposed by Sri Ranga raja of *Kalandrúg*.
1450	Rama chandra rao, son of Sri Ranga

The *Mlechhas* (Muhamedans) followed, and Pratápa Rudra, whose officers, HUCCA and BUCCA, raised the Vijyanagar dynasty, the list of which in BUCHANAN, iii 476, differs essentially from that given by inscriptions

TABLE XLIII RÁJAS *of* CHOLA, *(Chola-mandelam, Coromandel,)*

Including the country now called the Carnatic below the Ghats, had TANJORE *Capitals (in Ptolemy's time), Arcot then Wariur, near Trichinopoly next, Kumbbahena, and lastly, Tanjore* WILSON'S MACKENZIE MSS

A D	
700-1000 ?	Kulottunga—others say 3000 B C or 500 A D, or 1200 A D, [built temple at *Tangapur*, or *Tanjore*.
	Deva Chola
	Sasisekhara
	Siva linga
918 ?	Vira chola
1100 ?	Kori kala, persecutor of Ramánuja
	Bhima
886 ?	Rajarajendra, subdued various countries
	Vira martanda
	Kirttivardhana
	Vijaya
	Kanaka
	Sundara, killed a Brahman
	Kalakala
	Kalyána
	Bhadra
1407 ?	Pattira Chola last according to some accounts,
	Kulottunga Chola—last according to others, married his daughter to 48th Pandyan prince, who succeeded
	An illegitimate son (Nanda ?) founded the *Tonda Mandalam (Conjeveram)*—also annexed to *Pandya* kingdom

TABLE XLIV RAJAS *of* CHERA *or* KONGA, *(comprehending Salem and Coimbatore)*

The Kongadesa Raja kal enumerates 26 princes MACKENZIE'S MSS

Vira raya	Durvaniti
Govinda raya	Pushkara
Krishna raya	Trivikrama
Kalivallabha	Bhúvikrama
Govinda, II	Kongani Mahádhirája
Chaturbhuja	Govinda, III
Kumara deva	Sivaga
Trivikrama deva	Prithivi Kongani Mahádhiráya
Kongani vermá	Raja deva
Madhava verma.	Malla deva
Hari varmá	Ganda deva
Vishnugopa	Satya vrákya deva
Krishna varma	A D 891 Gauttama deva, subdued by the
Dindikara	

Chola Rája, from whose descendants it passed to the *Belál* rájas of *Maisur*, and thence to the *Vijayanagar* dominion.

TABLE XLV PANDYAN DYNASTY *of* MÁDURA

Tradition ascribes 74 princes, of whom 39 names are extant

Kulottunga, 2000 B C ?	Pandya Vamsapátáká
Anantaguna	Sundareswara.
Kálabhúshana	Padasekhara
Rájendra Pandya	Varaguna, united *Chola* and *Tonda* to *Mádura*
Rajeswara	Rájendra
Gambhira	Suguna
Vansapradipaka	Chitraratha.
Purahutajit.	

13 *Mahá Rájas of Mádura, Tanjere, and Coimbetore, reigned* 239 *years*

	Udiamara, reigned..	18 years
	Jeya deva, ..	19 ditto
	Lohita, .	10 ditto
	Ganga díra, . .	11 ditto
	Vamr. deva,	13 ditto
	Terupulinda,	34 ditto
	Pattáviran, ..	43 ditto
	Sri Devanátha,	38 ditto
	Malik Arjana, .	7 ditto
	Adi Raer, .	13 ditto
	Mahá sustra,	16 ditto
	Visuvesvara,	8 ditto
950?	Chindrabuti,	9 ditto

During this dynasty, the palace of *Mádura* is supposed to have been erected

After which follow the *Belál* Rájas of the *Karnáta*, and the petty Polygi dynasties of *Mádura*, &c

TABLE XLI. BELÁL RÁJAS *of the* KARNÁTA *Capital Dwárasamudra Nine Princes governed above the Ghát* 98 *years, and afterwards below the Ghát* 111 *years* (BUCH *Mysore*, ii 112)

A D	MACKENZI MS		BUCHANAN, iii 474	
984	Hayasala Belála raya		Raja Belala Ráya, reigned	18
1013	Vinádítya Belála		Vira B R	11
1073	Yareyánga Belála		Chinna B R	22
1114	Vishnu Verddhana Belála		Deva B R .	14
1145	Vijaya Narasinha Belála	1016	Vishnu verti B R	28
1188	Vira Belála		Hari B R	19
1233	Vira Narasinha deva		Imadi B R .	17
1249	Vira Someswara		Visia B R	16
1268	Vira Narasinha, taken by the Mahomedans, and his capital destroyed in 1310-11		Buca B R	22
			China Buca B R . .	8

TABLE XLII ADEVA RÁJAS *of* TULUVA, ANDHRA, *or* TELINGÁNA *Capital Woragalla or Warancal*

19 *Adeva Rájas reigned* 370 *years*, (211 *years* ?) *supposed to be the* 18 *princes of Andhra descent, prior to Pratápa Rudra*

A D		
800?	Sri Ranga A R., reigned	25 yrs
	Vira Náráyana A R .	23
	Wobala A. R	21
	Siruvayanagada A R	22
	Pirungei Endia A R .	15
	Canda Gopála A R . .	32
	Narasinha A R	13
	Cambuli A R	15
	Bacan A R .	22
	Vira Narasinha A R .	12
	Narasinha A R .	8
	Duia A R .	12
	Sri Pandia A R . ..	9
	Vasu deva A R .	12
	Siric Virindi A R . ..	15
	Cutia deva, A R	14
	Rája visia Bujinga, ...	12
	Salica Náráyana A R	10
	Pritivani Bacukera Sadicun, .	87
1167	Uricandi Pratápa Rudra, 58 or 54, ended 1221.	
	Anna Pemma, ... 77 supposed subsequent to Mah subjection.	

TABLE XXXIX RÁJAS *of* MANIPUR, *Mithie, or Mogli From the Michouba or royal genealogical roll, Capt* PEMBERTON'S *MS*

A D					
35?	Pakhungba, reigned	110 yrs	1437	Ninthoukhombo, reigned	35 yrs
174	Khoi,	90	1472	Keyamba,	40
264	Tanuthangmang,	100	1512	Koeremba,	5
364	Koeming gualba,	15	1517	Lamchaigmanba,	3
379	Pensiba,	15	1520	Nongyilphuba,	9
394	Kanu khangba,	15	1529	Kapomba,	17
411	Nanu khamba,	17	1546	Tangchomba,	4
428	Nanu phamba,	90	1550	Chulhamba,	17
518	Samuerang,	50	1567	Mungyamba,	35
568	Kol Thuoba,	90	1602	Khakemba,	55
663	Nanutninghong,	100	1657	Khulchuba,	14
763	Khongtekcha,	10	1671	Paikhomba,	31
784	Kaercleha,	15	1702	Charairongba,	12
799	Yaraba,	22	1714	Pamhaiba—Gharibnawáz, or Garmuni Rája, or Myanggnumba,	39
821	Ayangba,	89			
910	Ningloucheng,	39	1753	Khakhilalthaba, or Oogat Sháh,	3
949	Eipál lal Thaba,	24			
973	Yanglao kai phamba,	8	1756	Mingthoekhomba—Bharat Sháh,	2
981	Eerengba,	89			
1070	Laiyamba,	56	1758	Gouri Sham—Maiamba,	6
1126	Loitongba,	30	1761	Chingthangkhomba, or Jaya Sinha, Nongnangkhomba,	2
1156	Monyonelba,	14			
1170	Eiwalthaba,	30			
1200	Thawálthaba,	36	1766	Gouree Sham,	1
1236	Chingtanglalthaba,	11	1767	Jaya Sinha,	31
1247	Thing baisel homba,	5	1798	Robin chandra,	3
1252	Puralthaba,	16	1801	Modu chandra,	5
1268	Khumomba,	15	1806	Charjit Sinha,	6
1283	Moeiamba,	24	1812	Marjit Sinha, expelled by Barmas,	1819
1307	Thangbilalthaba,	22			
1329	Kongyamba,	31	1824	Gambhir Sinha, brother, regained possession	
1360	Telhueba,	19			
1399	Laizelba,	5			
1409	Púlseba,	24	1834	Kirti Sinha, a minor, son of do	

TABLE XL *The* NARAPATI, *or* SHOLAN DYNASTY *of* KARNÁTÁ, DRAVIRA, *and the southern portion of the peninsula* 27 *Rájas, reigned* 534 *years*

Contemporary with the Gajapati and Asvapati Dynasties from a MS translated by BUCHANAN

A D				
266?	Utinga Sholan, reigned	32 yrs	Arleana Cadamai Canda Sholan,	62 yrs
	Culatunga Sholan,	18	Jayam Canda Sholan,	12
	Rájendra Sholan,	11	Kurmi Canda Sholan,	20
	Tiramadi Canda Sholan,	13	Tondaman Sholan,	12
	Carical Sholan,	21	Buddam Cattam Sholan,	45
	Arundavan Sholan,	13	Shomuman Sholan,	11
	Vomyara Sholan,	17	Ghingui Canda Sholan,	11
	Shayangana Sholan,	15	Sundra Pandia Sholan,	40
	Munalinda Sholan,	12	Pottápa Sholan,	24
	Mavanedi Canda Sholan,	15	Shingu Vullanda Sholan,	14
	Vakula Sholan,	14	Deva Sholan,	10
	Alaperinda Sholan,	8	Shayanahatti Sholan,	15
	Tiraveiatu Sholan,	15	Vira Sholan,	30

800? Shayangara Sholan, 24 years, the MS makes the final date, A D. 288 After the overthrow of the *Narapati* dynasty, *Karnata* and *Dravira* seem to have been separated from the southern districts, in which the *Chera*, *Chola*, and *Pandava* lines were at first united under one sovereignty.

Indravansa (Indu) Dynasty

1230? Chu-kápha, became independent, and spread conquests, surnamed *Asama* (unequalled), whence *Assam*
1268 Chu-toupha, son, defeated the Raja of *Cachár*
1281 Chu-benpha
1293 Chu-kangpha
1332 Chu-khampha, valley invaded by Muhammed Sháh, 1337
1364-9 Interregnum of five years, when the ministers installed
1369 Chu-taopha, a relation conquered Chhutiyas
1372 Chu-khamethepa, a tyrant, killed by his ministers
1405-14 Interregnum of nine years
1414 Chu-dargpha, conquered as far as the river Kurutoya
1425 Chu-jíngpha, his son
1440 Chu-phúkpha, ditto
1458 Chu-singpha, ditto
1485 Chu-hangpha, ditto
1491 Chu-simpha, a tyrant, put to death
1497 Interregnum, and Hoseín Sháh's invasion, 1498
1506 Chu-humpha, a brother, various conquests
1549 Chu-klunpha, his son, built *Gurgram*
1563 Chu-khrunpha
1615 Chu-chaiupha, introduced reforms, protected Dharmanáraín
1640 Chu-rúmpha, a tyrant, dethroned
1643 Chu-chinpha
1647 Kuku-raikhoya Gohani, dethroned for his brother
1665? Chukum, or Jayadhwaja Sinha, adopted Hindu faith, defeated Aurangzeb's general?
1621* Chakradhwaja (or Brija) Sinha, built fort of *Gohati* (Sámagrya deva, Mc C.), repulsed Aurangzeb's general? called Chukum?
1665 Kodayaditya Sinha, attempted to convert the people
1677 Parbattia Kunria
1681 Lorarája, for some reigns confusion prevailed until
1683* Gadadhara Sinha, his son Kana set aside
1689-1713* Rudra Sinha, built Rangpur and Jorhat, his coins first bear Bengalí inscriptions
1715-21* Siva Sinha, established Hindu festivals
1723-26* Phuléswarí, his wife, acquires sovereign rule
1729-30* Pramathéswari deví, ditto
1732-36* Ambiká deví, ditto
1738-43* Sarvvéswari deví, ditto
1744* Pramatha Sinha, made equitable land settlement
1751* Rajeswara Sinha, embellished *Rangpur*, allied with Manipur
1771* Laxmi Sinha Narendra, younger son, raised and deposed by minister
1779* Gaurinatha Sinha, his son
1792* Bharata Sinha Mahámari, conquers Rangpur, and
1793* Sarvananda Sinha, usurps power at *Baingmara*
1796* Bharata Sinha, again attempts, but is killed
Gourinatha Sinha, restored by British, died at *Jorhát*
1808* Kamaleswara Sinha, or Kinnaráin, not crowned
Rája Chandrakanta Sinha Narendra, fled to Ava
Purandhar Sinha, great grandson of Rajeswara Sinha, expelled by Burmese, and
Chandrakanta, restored, but deposed again, and
Yogeswar Sinha, raised by Assamese wife of Ava monarch, under Menghi Maha Theluah, the Burmese general and real governor
1824 Burmese expelled by English

1712* Date of Manipuri square coins
1763* Persian coins of Rája Mír Sinh of *Rangpur*
1780* Bengálí coins of Jayantea Raja

* These dates are confirmed by coins in Marsden's Num Or and others in Captain JENKIN's collection

TABLE XXXVII RÁJAS *of* BENGAL, *capitals, Kanauj ?—Gaur*

Abul Fazl enumerates three Dynasties anterior to the family of Bhupála, which last is identified by inscriptions found at Benares, Monghir, Dinajpur, &c viz.

The family of Bhugrut (Bhagiratha), Xatriya—24 princes, reigned 2418 years.
The family of Bhojgorya, Kaith—9 princes, reigned 250 years
The family of Udsoor (Adisur), Kaith—11 princes, reigned 714 years
Then follows the family of Bhupál, to whose 10 reigns 689 years are allotted, which is evidently too much, the succession of names differs also somewhat from those of the inscriptions

	From Abul Fazl	*Monghir plate**	*Dinajpur copper-plate*
	Bhopala	Gopála	Locapala
1027	Dhirpála	Dhermapala	Dhermapála
1050	Deopála	Devapala	Jayapala
	Bhupatipála	*Budal plate*	Devapala
	Dhanpatpala	Rájapala,	Náráyanpála ?
	Bijenpala	Surapála	(Two names illegible)
	Jayapala	Narayanpala	Rájapala
	Rajapala	*Sarnath inscript*	Vigrahapala
	Bhogpála	Mahipála,	Mahipala, at Benares
	Jagadpala	Sthirapála,	Navapála
		Vasantapala	1021 Vigrahapala
		1017 Kumarapála *(Fer)*	

Vaidya Rajas of Bengal

1063 Sukh Sen
1066 BEJAL SEN, built the town of Gaur
1116 Lakshman Sen
1123 Mádhava Sen
1133 Keshava Sen
1151 Sura Sen
1154 Nar' yana—Noujeb, last rája of Abul Fazl's list
Laxmana
1200 Laxmaniya
(See Mahomedan dynasties)

TABLE XXXVIII RÁJAS *of* ASSAM—*anciently* KAMRUP.

The best authority is a Native History, (Assam Buranji,) by Huliram Dhaikiyál Phukan, of Gohátí Beng era 1236 As Jour 1830, p 297, also Mr Scott's MS Notes, arranged by Dr McCosh —Buchanan is not to be trusted prior to Rudra Sinha

After bringing down the genealogies to the *Xatriya* Dynasty of *Dravir* (DHARMAPA'LA, &c who invited brahmans *from Gaur* to his court, north of the *Brahmaputra!)*

Brahmaputra Dynasty 240 *years*

Shusánku, or Arimatu, built fort of *Vidyagarh*
Phainguya, an usurper of the race of Kumuteshvar.
Gujanke, former line restored.
Shukaranku
Mriganku, without issue, died A D 1478
Assam divided into 12 petty states
1498 ——— invaded by Dulal Ghází, son of Hosein Sháh
Musundár Ghází
Sultán Ghiásuddín, after whom 12 states restored, of which *Nara, east of Saumar*, had been gradually rising into power, since the middle of the 13th century

* The Monghir plate, dated 23 or 123 *Samvat*, evidently refers to the *Bhupála* dynasty, and not to the Vikramáditya era as was supposed by WILKINS.

1323 HARA SINHA DEVA, rajá of *Simroun*, who was expelled from his own dominions by the Patan sovereign of Delhi *(See below)*
Belal Sinha, capital *Bhatgoan*
Sri deva mall
Naya mall
Asoka mall
Jestili mall
Jait mall
1600 JAYA EKSHA MALL, (or Jye Kush Mull,) divided *Patan*, *Khatmandu*, *Banepa*, and *Bhatgaon* between his daughter and three sons

Bhatgáon		*Banepa*		*Patan*
Raya Malla		Ran Malla		a daughter
Bhai Bhim malla		*Khatmandu*	1654	Siddhi Nara Sinha
Besson malla		Ratna malla	1685	Nirman Indra malla
1669 79 Jaya Chakra mall	1632	Jaya Prakás malla		
Títhoka malla	1656	Pratap malla	1689	Yoga Narendra malla
Jagat Joti malla	1662	Jaya Yoga Prakás malla	1695	Mahipat Indra mall
Jay Jeta mitra malla	1695	Jaya Prakás malla	1696	Jaya vira mahendra
1695 Bhupati India malla	1701	Bhaskara malla	1706	Jaya Indra malla deva
	1715	Mahendra malla		
1721 Ranjit malla, formed alliance with Gurkhas, which ended in his subversion, and finally that of all Nepál	1722	Jaya Jagat Jaya malla	1715	Hridiah Narasinha
	1716		1716	Kishi nirmal deva
	1724 / 1768	Jaya Yoga Prakás mall, from *Patan*	1722	Jaya Zughir yoga malla deva
			1729-31	Jaya Vishnu malla
			1742	Jaya Yoga Prakas malla deva
			1749-5	Jaya Vishnu malla Agani

Gurkhali Dynasty, descended from the Udayapur Rájpúts, occupied Kemaon and Noakót, for 6 or 8 generations, prior to conquest of Nepál

1768 PRITHINARAYAN Sáh
1771 Pertab Sinha Sáh deva
1775 Ran Bahadur, (Bahadur Sáh regent,) deposed by nobles, 1800
1800 Girvan Yudh Vikrama Sáh deva
1804 Ran Bahadur, returns from Benares, deposed and assassinated.
1805 Girvan Yudh Vikrama Sáh deva, again
1816 Rajendra Vikrama Sáh deva

The *Khatmandu* and *Patan* names, and all the dates from 1632 downwards, are confirmed by Nipalese coins in my possession, collected by Dr Bramley

TABLE XXXVI RÁJAS *of* SAMANGARHA, *or* SIMROUN, *in the Tarái, south of Nèpal*

	From Kirkpatrick	*From Hodgson's List, Journ As Soc IV 123*
A. D. 844	Nána deva	Nányupa deva, founded Simroun, A D. 1097
	Kanak deva	
	Narsinha deva	Ganga deva
	Ráma Sinha deva.	Nara Sinha deva.
	Bhad Sinha deva	Ráma Sinha deva
	Karm Sinha deva	Sakti Sinha deva
1323	Hara Sinha deva.	Hara Sinha deva, compelled to abandon his capital and take refuge in the hills, when *Simroun* was destroyed by Toghlak Sháh, in 1323 A D. *See above* for his connection with the Ráj of *Nèpál*.

1130 Sarva varma
1081 Pathi (Prithi)* varma
1025 Jist (Jayertha) varma
977 Kuber (Kuvera) varma
901 Hari varma
824 Siddhi varma
763 Haridatta varma, (founded Sapae Narayan temple)
724 Vasu datta varma
691 Sripatri
688 Siva vriddi
611 Vasanta deva
550 Deva
493 Bakh (Vriksha) deva
436 Sankara deva
386 Brahma deva
335 Mán deva, erected *Sambhunath mundil*
297 Mahe deva
247 Vasanta deva
190 Udaya deva
145 Man deva, II 3 years drought
98 Sukam
48 Siva deva
6 Narendra deva
A D 27 Bhima deva, varma, displaced by the

Ahirs, or original Sovereigns

43 Bishen gupta
117 Krishna gupta
178 Bhúmi gupta, expelled by

The Neveri Dynasty, restored

218 Siva deva varma, (adjusted date A D 470)
259 Anghú varma
301 Kutu varma
319 Bhima Arjuna deva
358 Nanda deva
371 [illegible]
387 Narendra deva
424 Bala deva
441 Sankara deva
453 Bhima Arjuna deva, II
469 Jaya deva
488 Sri bala deva
504 Kondara deva
531 Jaya deva, II
574 Bala deva, III
585 Balanjun deva
622 RAGHABA DEVA, adjusted date, A D 880†
685 Sikar deva*
773 Soho deva
807 Vikrama deva
808 Narendra deva
810 Ganakáma deva*
895 Udaya deva
901 Narbhay deva
908 Bhoj deva bhadra
917 Lakshmi kám deva datta
938 Jayadeva, reduced *Patan*
958 Udaya deva
966 Bala deva
977 Padhem deva
981 Nag Arjuna.
987 Sankar deva
1001 Bam deva
1006 Sri Harak deva
1022 Siva deva
1050 Indra deva
1062 Man deva
1067 Narendra deva
1073 Rudra deva*
1153 Amrita deva, (a great dearth)
1157 Sumesu deva
1164 Baz kám deva
1195 Anya mall—a famine
1244 Obhaya mall, ditto, and earthquakes
1246 Jaya deva

1280 Anwanta mall deva Kásia and Tirhut families settled in Nipal, *Sam* 1344 A D 1287
Jayananda deva
Jaya sinha mall
Jaya Ratna mall, daughter married Hari Chandra, Rája of Benares — his daughter Raj Lachmi succeeded but was deposed by
1323 Jaya deva, who was dispossessed of the throne by

† This is exactly the first year of the *Newár* era He, it is said, introduced the *Samvat* into Nepal, which may apply to this, and not to the era of Vicramaditya (With one or two exceptions, marked*, these reigns are of natural lengths, and require no adjustment)

1539 Narsinha Jenna, deposed by
1550 Telinga Mukund deo, (Harichandan,) invaded, and sovereignty of Orissa overthrown, by King of Bengal, 1558

Khurda Rájas, Bhuvansa, or Zemindari race

1580 Ramchandra deo, titular Rája under Akbar
1609 Pursottem deo Afghan incursions
1630 Narsinh deo
1655 Gangadhar deo
1656 Balbhadder deo
1664 Mukund deo
1692 Dirb Sinh deo
1715 Harikishen deo
1720 Gopináth deo
1727 Ramchandra deo Boundary much reduced
1743 Birkishore deo Marhatta depredations
1785 Dirb Sinh deo, attached to *Nagpur* 1755-6
1798 Mukund deo, deposed by the English, 1804

TABLE XXXV RÁJAS *of* NE'PÁL

The mythology of Népal commences, like that of Cashmír, with the desiccation of the valley, for ages full of water, by a Muni called Naimuni, (whence the name of the country Naipala) whose descendants swayed the sceptre for near 500 years —Kirkpatrick's Nipál

B C 3803 Bhurimahágah, (adjusted back at 18 years per reign, B C 841?)
3795 Jayagupta
3722 Permagupta
3631 Sri Harkh
3564 Bhimagupta
3526 Munigupta
3489 Bishengupta
3423 Jayagupta, II overcome by Rajputs of the Terai, near Janakpur, B C 700?
3211 Bal Sinha, descendant of Mahipa Gopala
3302 Jaya Sinha
3281 Bhuwani Sinha, overcome by the

Kerrat tribe of eastern mountaineers

3240 Yellang, adjusted date B C 646?
3150 Daskham
3113 Balancha
3081 Kingli
3040 Hananter
2990 Tuskhah
2949 Srupast
2910 Parb
2854 Jety dastrí
2794 Panchem
2723 King king-king
2667 Súnand
2627 Thumú
2558 Jaigri
2498 Jenneo
2425 Suenkeh
2365 Thúi
2294 Thamu
2211 Barmah
2138 Gunjeh
—— Kashkún
2065 Teshú
2019 Sungmía
1950 Jusha
1887 Goutho
1813 Khimbhum
1739 Galijang, displaced by Khetris of the

Surya-vansi race

1658 NEVESIT, (adjusted date of conquest, B C 178)
1608 Matta Ratio
1517 Kaikvarma
1441 Pasupush deva (founded Paspatnáth)
1385 Bhoskar varma, a great conqueror
1311 Bhumi varma
1270 Chandra varma
1249 Jaya varma
1187 Vrisha varma

Bhojdeo conspired against and killed by his uncle
1155 Jesal, slain in defending *Lodaya* Removed capital to *Jesalmér*.
1167 Salivahan, II throne usurped by his son, Bijil
1200 Kailun, elder brother, repelled the Khán of *Baloch*
1218 Chachik Deo, extirpated Chunn Rajputs
1250 Karan, repelled Mozaffer Khan
1270 Lakhan Sinh, an idiot, replaced by his son
1275 Punpál, dethroned by nobles
1275 Jaetsi, recalled from *Gujerát*—defended fort for 8 years
1293 Mulráj, III great sack of *Jesalmér* by Mabúl Khan, 1291
Dúdú, elected Rawul, second sack and immolation
1306 Gursi, re-establishes *Jesalmér*
Kéhar, adopted, feuds
Rao Kailan, or Kerore, conquered to the Indus—lived to 80
Chachik Deo, fixed capital at Marote, continued feuds
1473 Bersi, conquest of *Multán* by Baber
Sabal Sinh, *Jesalmér* becomes a fief of empire, under Rawuls Jait, Nunkarn, Bhim, Manohar Das, conversion of Bhattis
Umra Sinh, predatory incursions
1701 Jeswant, alliance with Mewár—end of Bhatti chronicle
1722 Akhi Sinh, Sarúp Sinh minister potential
1761 Mulrája, ditto
1820 Gaj Sinh, ditto, under British protection

Table XXXIV. Orissa, Or-Desa, *or* Atkala-Desa, *hod Cuttack*

From the Vansavali, and Rája Charitra, in the Uria language, preserved in the temple of Jagannáth, a record supposed to have been commenced in the 12th century —Stirling's Account of Cuttack As Res xv 257

After the usual detail of the Mythology, and early kings of India, down to Vicramáditya,

A D 142 Bato Kesari
193 Tirbhoban deo
236 Nirmal deo
281 Bhima deva
318 Subhan deva. Rakta Bahu invades *Jagannáth by sea*, destroyed by an inundation of the sea, that also formed the Chilka lake
Indra deva, was captured and displaced by the Yavanas, who reigned for 146 years

Kesari-vansa restored

473 Jajati (Yayáti) Kesari, capital *Jajepur*
Suraj Kesari
Ananta Kesari
617 Lálat Indra Kesari, built the *Bhuvaneswar* temple, 657
32 reigns, extending 455 years Cuttack built, 989

Ganga-vansa

1131 Churang, Saranga deva, or Chor Ganga, invaded Orissa
1151 Gangeswara deva extended dominions
1174 Ananga Buím Deo, ascended Gajapati throne, endowed *Jagannáth*, struck coin, title Ráwat Rái
1201 Rájeswara deo
1236 Ra'ja Narsinh Deo, built *Kanárak* (black pagoda) 1277

5 *Nara Sinhas and* 6 *Bhánus, called the Suraj-vansa Rájas*

1451 Kapil Indra deo, adopted by the last Bhánu, assisted Telinga Rája against Musalmans, 1457
1471 (Himber ? Rai of Uria, according to Ferishta)
1478 Pursottem deo, conquers *Conjeveram*
1503 Pertáb Rudra deo, left 32 sons, all murdered by
1524 Govind deo, his minister
1531 Pertáb Chakra deo, last of the dynasty

Hundeo
Kuntal.
1185 PŪJANDEVA, (Pajun,) married daughter of Prithi Rája
Malés
Bijal
Rájdeo (Sahirdeva ?) of *Narwar*, defeated by Mahmud, II 1251, F)
Kílan
Kontal
Junsi
Udayakarna—his son Biloji obtained *Amritsir*, called *Shekhávat* from his grandson Shekhjí
Naia Sinh
Bairbir
Udhárao
Chandrasén
Prithi Rāj, pilgrimage to *Dewal* on the Indus murdered by
Bhíma, his son
Aiskain
1550 ? Biharimal, (Puranmal, W) paid homage to Baber
1586 ? Bhagwán Das, Akber's general, wedded his daughter to Jehangir
1592 MAN SINH, ditto, governor of Bengal—Dakhan—Cabul
1615 Bhao Sinh, died of drinking
1621 Mahá Sinh, ditto
1625 ? JAYA SINH, Mirza Rája, poisoned by his son Kerat
Rám Sinh, reduced to mansib of 4000
Bishen Sinh, ditto 3000
1698 SIWAI JAY SINH founded *Jaypur*, published *Zij Mahomedsháhí*.
1742 Iswari Sinh
1760 Madhu Sinh
1778 Prithi Sinh, II minor
1778 Pertap Sinh
1803 Jagat Sinh, an effeminate prince, died without issue
1818 Jay Sinh, III posthumous, believed supposititious

TABLE XXXIII RAOS *of* JESALME'R

Dynasty of the BHATTIS, ***a branch of the Yadu race of the Chandra Vansa***, TOD

Nába, fled from *Dwarica* to *Marusthalí*—*(Bhágavat)*
Prithibahu—Khíra—Jud-bhán, (from Bhatti chroniclers)
Báhu-bal, espoused daughter of Vijaya Sinh, *Malwa*
Báhu, killed by a fall from his horse
Súbáhu, poisoned by his wife, daughter of *Ajmír* Rája Mund
Rijh married daughter of Ber Sinh of *Málwá*, invasion of Ferid Sháh.
B C 94 ? Rája Gaja, invaded Kandrupkél, in *Cashmír*
A D 15 ? Salbahan, 15 sons, all Rájas, conquered Panjab, expelled from Cábul
Báland, invaded by *Turks*—his grandson Chakito, source of Chakit tribe
Kullur, 8 sons, all became Musalmans
Jinj, 7 ditto
BHATTI, court at *Lahore*, gave name to family
Mangal Rao, expelled by king of *Ghazni*—settled in *Mér*
Majam Rao, his son—
730 Kehur, invaded by the Barahas, 787, A D 731
733 Tanno, erected Bíjnót
813 Bíji Rae, continual feuds with the Langas, till 1474. Title Rao, exchanged for Rawul
Deoraj, excavated several lakes, one at Tunnote
Munda
1008 Bachera, tributary to Anandapál of Delhi, invaded by Mahmúd.
1043 Dusaj

TABLE XXX MA'RWÁR *or* JODHPUR. *Continuation of ditto.*

1210 Sivaji, grandson of Jayachandra, settled in the desert, *Khér*
Ashthama, (Asothama T.)
Doohai, T. Dula Rai, W. made attempt on *Kanouj* and *Mandor*
Raipal
Kanhul
Jalhun
Chado
Theedo
Siluk or Silko, (origin of the *Silkáwats* or *Bhomeás*)
Biramdeva
1381 CHONDA, assaulted *Mandór*, and made it his capital
1408 Rinmal, of *Gohila* mother, made pilgrimage to Gaya
1427 Rao JODA and 23 brothers, had separate fiefs
1458 founded *Jodhpur*, and removed from *Mandor*
1488 Rao Sujoh, or Surajmal, rape of Rahtore virgins by Pathans
1515 Rao Ganga
1531 Rao MALDEO, becomes chief Rája of Rajputs, fortifies capital
1568 sends his son as hostage to Akbar, marriage alliance
1583 Udaya Sinh, Chandra Sinh, upheld by clans installed by Akbar
1594 Soor Sinh, named Siwai Rája, a general in Mogul armies
1619 Raja Gaj Sinh, slain in *Gujerat*
1637 Jeswant Sinh, died in *Cabul*
1680 AJIT SINH, posthumous Rahtore conflict at Delhi, 4th July, 1679, (7th Sravan, 1716.) 30 years' war against empire. Murdered by his son
1724 Abhay Sinh, entitled Maharaja Rajeswar, 1728
1749 Rám Sinh, son, defeated by his uncle
1749 Bakht Sinh, who was poisoned in 1752
1752 Vijaya Sinh, (Beejy Sing,) disputed succession with Ram Sinh
1793 Bhim Sinh, usurps throne on his grandfather's death, by defeat of Zalim Sinh
1803 Man Sinh. Feud for Kishna Kumárí, the *Udipur* princess

TABLE XXXI THE BIKANE'R RÁJ, *a scion of* JODHPUR

158 Bíka, son of Joda, settled in the *Jit* country
194 Nunkarna
512 Jaet
516 Kahán Sinh
573 Ray Sinh
1631 Karna Sinh
1673 Anop Sinh
1708 Sarup Sinh
Suján Sinh
1736 Zurawar Sinh
1745 GAJ SINH
1786 Raj Sinh, poisoned in 13 days by
1788 Surat Sinh, regent, who usurped the throne
1799 ——— vanquished Surtan Sinh and Ajib Sinh
1804 ——— annexed Bhatner to his dominion

TABLE XXXII RÁNAS *of* AMBER *or* DHUND'HÁR *Capital Jaypur*

The Cuchwáha race of Rájputs claims descent from CUSH, *second son of* RA'MA, *king of Ayodhya, who migrated and built the fort of Rotás, on the Son*

A D 294 Raja NALA, founded *Narwar* or *Nishida*
Thirty-two princes—having the affix, *Pála*
965 Sura Sinh
966 Dhola (Dula) Rai, expelled from *Narwar*, founded *Dhund'hár* dynasty
Kankul.
Maidul Rao, took *Amber* from the Meenas

Banbír, the bastard, raised to throne by Rájputs
1540 Udaya Sinh, (Oody Sing,) 3rd sack of *Chítor*, 1580, by Akber
1583 Pertap, *(Rana)* reverses at *Udípur* and *Kumalnír*
1596 Amera, (Umra,) succeeds, recovers the ruined capital, defeats Abdulla Jan 1610, makes peace with Jehángír
1620 Kerna, (Kurn,) last independent Rája, embellished *Udípur*
1627 Jagat Sinh, tributary to Shah Jehan, peaceful reign
1653 Raj Sinh, bunded Lake *Rajsamundra*
1680 Jay Sinh, forms the lake *Jay samund*
1699 Amera, II triple alliance with *Marwár* and *Ambér*, S 1756
1715 Sangrám Sinh, the *jezeya* tax abolished
1733 Jagat Sinh, II pays chouth to Mahrattas
1751 Pertáp, II
1754 Raj Sinh, II Country desolated by Marhattas
1761 Arsi, his uncle Zalim Sinh's rise
1771 Hamira, a minor
1777 Bhím Sinh his brother Holkar and Sindia overrun *Mewár* Marriage feud of *Jypur* and *Jodhpur* Kishna Kumári poisoned, and the race of Bappa Rawal extinguished, all but
1828 Jewan (Javan) Sinh, the only surviving son

TABLE XXIX RAHTORE DYNASTY *of* KANOUJ, *afterwards continued in* MA'RWA'R, *or* JODHPUR

From TOD's *genealogical rolls of the Rahtores, preserved by the Jains vol* ii 5, 6,7

A D (After the usual Theogony)

300? YAVANASVA, prince of *Parhipur?* supposed of Indo-Scythic origin
390 Basdeo, *(Vasadeva*,)* revives Canouj dynasty, his daughter marries Bahram Sassan, of Persia } FERISHTA
450 Ramdeo, fixed in Marwar—tributary to Feroz Sassan }
469 NAYANA PA'LA, conquers Ajipala of *Canouj*—hence called *Káma dhvaja*
Padarat or Bharata, king of *Canouj*
Punja, his son
570? Dhurma Bhumbo, his descendants called Dhanesra Camdhaj, (for 21 generations bore the name of Rao, afterwards Rája)
Aji Chandra

		From inscriptions†	*From coins, old Series*
			Aparajitadhajaparakrama
Udaya-chandra			A'patiruha
Nirpati			Kragiptaparagupta?
KENIKSE'NA, see Malwa 400?		Gupta,	Sri Vikrama
		Ghatotkacha,	Chandragupta
Schesra-sála		Chandragupta,	Samudragupta
Méghasena		Samudragupta,	Kumáragupta
Virabhadra		a son	Vikrama Narèndragupta
Deosen			Sasigupta?
Vímalasena			Asvamèdhaparakrama
Dánasen.	700?	Yasovigraha or Sri-	*New Series*
Mokunda	1072	Mahichandra [pála	
Bhadu,	1096	CHANDRA DEVA, conq	Mahípala deva
1016 Kóraoi Chandpal, F	1120	Madana Pala, [Canouj	Kumarapala deva
Rajsen	1144	Govinda Chandra,	Govinda Chandra
Tripála,	—	Vijaya Chandra,	Jadjeya deva
• Sri Punja	1169	Jaya Chandra,	Ajaya deva
(Vira Sinha, *see Bengal*		died, 1193	

712 (Yassovarman, *see p* 102
900 (Sáhasanka, *see Vis Prak*
Vijayachandra
1169 Jaya Chandra, (Dal Pangli)

* WILFORD names this prince *Sadapála*, or Sadasvapala As Res ix 211
† See Journal As Soc III 341

TABLE XXVIII RÁNAS *of* MEWÁR, *Capitals Chitôr, Udayapur.*

(Continued from Table XXVI.)

After the destruction of the *Balhara* monarchy of *Saurâshtra*, and two centuries' sojourn of the family in the Bhandér desert, BAPH or BAPPA conquered Chitôr, and founded a new dynasty in A. D. 727. The hereditary title was changed from *Gehlote* to *Aditya*.

	Wilson's list		*Tod from Aitpur inscription*
750	Guhila,	1	Sri Gohadit, founder of Gohila *(Gehlote)* tribe.
	Bhoja,	2	Bhoja (Bhagaditya ?)
		3	Mahendra
		4	Naga (Nagáditya.)
		5	Svela.
		6	Aparajit *(compare with Tab. XXVI.)*
		7	Mahendra
	Kalabhoja,	8	Kalabhoja
	Bhartribhata,	9	KHOMAN—invasion of *Chitôr* from *Cabul* 812, A. D.
	Samaliayika,		Mangal, expelled by chiefs
	KHUMAN,	10	Bhartripad, founded 13 principalities for his sons in *Málwá* and *Gujerát*
		11	Singhji, whose Raní, Lakshmi, bore
	Allata,	12	Sri Allat, whose daughter Haria deví was grandmother of
	Naravahana,	13	Nirvahana
		14	Salvahana
967	Saktivarma,	15	Saktikumar, resided at *Aitpur*, 967, or 1068 ? T.
	Suchivarma,		Umba Passa
977	Naravarma,		Narvarma, cotemp. with Sabaktegín
1027	Kuttivarma,		Yasuvarma, do. with Mahmúd. *Aitpur* destroyed
	Vairi Sinh, (Vira Sinha deva of Canouj ? *See Bengal.)*		
	Vijaya Sinh		
	Ari Sinh		
	Vikrama Sinh		
	Samanta Sinh, 1209, W. ?		
	Kumara Sinh		
	Mathana Sinh		
	Padma Sinh		
	Jaitra Sinh.		
	Tej Sinh		
1165 ?	Samara Sinh, (Samarsi, T.) born 1149, marries Prithi Raí's daughter		
1192	Kerna, or Karan, his son—		
1200	Rahup,—attacked by Shemsuddín, 1200		
	Nine princes, occupying 50 years, engaged in crusades, to recover Gayá from the infidels, (Buddhists,) T.		
	Bhonsi, recovers *Chitor*		
1274	Lakshman Sinh, (Lakumsi, T.) married Ceylon princess		
1289	(Ramdeo of Ferishta.) *Chitor* sacked by Allauddin, (1305, F.		
	Ajaya Sinh, (Ajaysi, T.) resided at *Kailwarra*		
1300	HAMI'RA, son of Ursi, recovered *Chitor*		
1364	Khait Sinh, (Khaitsi, T.) captured *Ajmir.*		
1372	Laxa Rána, (Lakha Rána, T.) rebuilds temples. Expedition to *Gayá*		
1397	Mokulji supplants rightful heir Chonda		
1418	Khumbo, (Kumbho, T. Gownho, A. A.) defeats Mahmúd of *Málwá*, pillar raised in commemoration, 1439		
1468	Oda, murders his father, and is killed by lightning		
1473	Raemal, repels invasion of Delhi monarch Lodi		
1508	SANGA, Singram, or Sinka, the *Kalas* or pinnacle of *Mewár* glory, successfully resists Baber at *Biána*, 1526		
1529	Ratna, fell in duel with Bundi Raja		
1532	Bikramajit, his brother. 2nd sack of *Chitôr* by Bahádur of *Gujerat*, recovered by Hamáyun		

Padmáditya,
Sivádítya, (466 Gardha-bhe-la ? of Jain MSS)
Haráditya,
Surváditya,
Somáditya,

Charagriha, I
Sridharasena, II
Dhruvaséna, II.
Srídharaséna, III
Siláditya, II
(3 names obliterated)
Charagriha, II

523 Siláditya, killed and *Balabhi* destroyed by the Parthians, 524

523 Siláditya, III
559 Siláditya Musalli, IV

Origin of Gehlote, Grahalote, or Sésodia tribe of Surya vansis *

Kaiswa, Goha, or Graháditya, posthumous son of Siláditya, [born in *Bhandér* forest
Nagáditya, of *Bhandér*
Bhagaditya
Deváditya
ASSADITYA, founded *A'spur* in Mewár
Khalbhoja
Graháditya, (others make Nagáditya, father of
713 Buph, or BAPPA, seized *Chitor*, from *Mori* tribe, A D 727
and founded the Gohila or Gehlote dynasty of *Mewár*

inscribed *ur* mar-

(Continued in Table XXVIII)

TABLE XXVII GUJERAT *Capital* PATAN *The Anhulwára Dynasty, a restoration of the dynasty of the Balharas*

[Ayín Akberi list collated with that of the Agní Purana, of WILFORD]

S	A D	
	696	Saila-deva, living in retirement at *Ujjain*, found and educated
802	745	Banaraja, son of Samanta Sinh, (Chohan,) who founded *Anhulpur*, (*Nerwaleh or Patan*,) called after Anala Chohán, A A
	806	Jogarája,
	841	Bhima Raja, Bhunda deva, WD
	866	Bheur, *from the Ayín Akberi*
	895	Behirsinh,
	920	Reshadat, Raja-Aditya, W
	936	Samanta, daughter, married son of Delhi Raja Bhunda, W

Rájas of the Solankhi tribe

	910 W	Mula Rája, usurped the throne
	1025	Chamund, invaded by Sultan Mahmud, (Samanta, W)
	1038	Vallabba, (Beyser, or Bisela, Ay Ak) ancient line restored
	1039	Durlabba, (Dabisalima, F) usurped the throne
	1050	Bhíma raja
		Káladeva, (Karan, A A) Carna-rajendra, or VISALADEVA, WD who became Paramount Sovereign of Delhi, (see p 104)
	1094	Siddha, or Jayasinh, an usurper
		Kumárapala, poisoned
		Ajayapala, son of Jayasinha

The Bhágéla tribe.

		Múla, (Lakhmul, A A) Lakhan raya, W without issue
		Birdmula, Baluca-mula, WD
		Beildeva, of Bhágéla tribe
	1209 W	Bhíma Deva, or Bhala Bhima Deva, same as the last, WD
	1250	Arjun deva,
	1260	Saranga deva, *Ay Ak*
	1281	Karan, Carna the *Gohilá*, fled to the Dakhan, when in the year
	1309	Gujerát was annexed to Delhi by Ala-ud-dín

* The Persian historians make Noshizad, son of Noshirvan, or Maha Banú, daughter of Yezdijird, the origin of the *Sesodia* race of Mewár, 531.

786 Suradeva.
801 Dharmadeva
815 Bhaldeva
825 Nanakdeva
834 Keyratdeva
845 Pithoura
866 Maldeva, conquered by Shekh Shah, father of Ala-ud-din.
Shekh Shah, from *Ghazni*
1037 Dharma Rája Soud, Vizir during minority of
1057 Alla-ud-din, who put him to death
Kemal-ud-din, murdered by
1069 Jítpál Chohan, (Jaya Sinh of Delhi and Lahore? 977,) a descendant of Manikya Rai?
1089 Harachandra
1109 Keyratchand
1111 Oogersein
1124 Surajnanda
1136 Tipperseun, or Beersén, dispossessed by
1146 Jelal-ud-din, an Afghan.
1168 A'lam Shah, killed in battle by
1192 Keraksén, son of Beersén, emigrated to *Kamrup*, married the king's daughter, succeeded to the kingdom, and regained Malwa

1200 Narbahen, | Udayáditya deva, Naravarma deva, Yasóvarma deva, Jayavarma deva, Lakhan, | A D 1137. 1143. | Ujjain inscription.

1220 Birsal
1236 Purenmall
1268 Hasanand
1330 Sakat Sinh, killed at the invasion of
1390 Bahádur Sháh, king of Dakhan, killed at Delhi

On the division of the Delhi monarchy, or Ghiasuddin's death,

1390 Diláwer Khan Ghorí, viceroy of Málwá, assumed sovereignty (*See Musalman Dynasties*)

TABLE XXVI SAURÁSHTRA (*Surát and Gujerát*) *Capital, Balabhipura The Balabhi, Bulhara, or Bala-rais Dynasty*

The Jain chronicles of Jai-sinha, consulted by Col TOD, *trace the ancestry of Keneksén, the founder of the Mewar family, up to Sumitra, the 56th descendant from Ráma, (vide the Surya-vansa list) Solar worship prevailed, afterwards the Jain.*

A D 0?	Maharitu, follows Sumitra, T	*Names according to Grants dug up in Gujerát,* WATHLN	
	Antarita,	*Senapati,*	Bhatarca, A D 144-190
	Achilséna,		Dharasén a
144	KANAKSENA, emigrates to Saurásh̄tra	*Maharájá*	Dronasimha
	Mahá Madan Sén,		Dhruvasén a, I*
	Sudentu		Dharapatta
			Grihasena
318	Vijya, or AJYASENA, founded the Balabhí era, T *		SRI'-DHARA SENA,* 319
			Siláditya, I.

* This and the *Sri Dharasena* of the adjoining list, fixed upon as the founders of the *Balabhi* era or *samvat*, may probably be the *Surara* of the *Puránas*, mentioned as a Vicramaditya to mount the throne An Kal Yug 3290, or A D. 191 or 291, (As. Rs ix 135, 203,) WILFORD Many legends related by him of the Aditya, belonging to this dynasty.

1707 Bhim Sinh, entitled Maharáo.
1719 Arjun.
1723 Durjan Sál, without issue, Zalim Sinh, born 1740.
Ajit, grandson of Bishen Sinh
Chati Sál, succeeded by his brother
1765 Gomán Sinh,—Zalim Sinh, *Foujdar*
1770 Omeda Sinh, ,, *Regent.*
1819 Kiswar Sinh, Madhu Sinh, do.

TABLE XXV RÁJAS *of* MALWA, *Capitals Ujjayana, and Mandór.*

This line is taken from Abul Fazl, and is supposed to have been furnished from Jain authorities it agrees nearly with appendix to Agni Purána, (WILFORD)

In early ages Mahahmah founded a fire Temple, disapproved by the Buddhists, but restored by

B C 840 Dhanji, (Dhananjaya, a name of Arjun,) about 785 before Vicramaditya, (see Anjana, Burmese list ?)
760 Jitchandra
670 Salivahana
680 Nirvahana
580 Putra Rajas, or Vansávalis, without issue
400 Aditya Punwar, elected by nobles, (cot Sapor, A D 191 W)
390 Birma or Brahma Raja, reigned in Vidharbanagar
360 Atibrahma, at Ujjain, defeated in the north
271 Sadhroshana (Sadásva-Sena*)
191 Heymert, Harsha Mégha, killed in battle (misplaced, WD)
91 Gundrup, Gardabharupa, Bahram-gor ? of WILFORD
56 VICRAMADITYA (3rd of WILFORD A D 441 Yesdejird ?) Tuár tr
A D 44 Chandrasen, possessed himself of all Hindustan
135 Karaksén, Surya Séna, W 676
215 Chaturkot, (Sactisinha succeeded, W)
216 Kanaksén, (see *Saurashtra* which he conquered ? 144 T)
302 Chandrapal
402 Mahendrapal
409 Karmchandra
410 Vijyananda, adopted a successor (his son being an infant) Sindula, W
470 Munja, killed in the Dekhan, (reigned A D 993 according to TOD)
483 BHOJA, (S 540,) by TOD 567 A D † Kalidás flourished.
583 Jayachandra, put aside in favor of
593 Jitpal, of the Tenore (Tuár) caste (Chaitra Chandra, *Bavishya P*)
598 Rana Rája
603 Rana Baju
604 Rana Jalu
620 Rana Chandra
654 Rana Bahádur
659 Rána Bakhtmal
664 Ray Suhenpál
669 Ray Keyretpál.
671 Ráy Anangapál, (rebuilt and peopled Delhi, 791, T)
~~744~~ Kunwerpál
735 Rája Jagdeva, of the Chohán tribe
745 Jagannath.
755 Hara deva
770 Vásu deva

* Vásudeva of WILFORD, Basdeo, Fer A D 390, father-in-law of Bahram, (see Canouj)

† The other two Rájas Bhoja, TOD fixes in 665 (from Jain MSS.) and 1035, the father of Udayati.

977 Jaya Sinh, (or Jypal of Ferishta, burned himself, 1000, see *Málwá*) extended his dominion to Lahore, &c.
1000 Ananda Déva, (or Ajay deo) Anandpál, F
Soméswara, married daughter of Anangpal of Delhi
1176 Prithiray, of Lahore, obtained Delhi, slain by Shahabuddín, 1192
1192 Rainasi, slain in the sack of Delhi, T
Vijaya Ray, adopted successor of Plithiray, (see Delhi pillar)
Lakumsi, thence 26 generations to Nonad Sinh, present chief of *Nimrána*, nearest lineal descendant of Ajipal and Prithiráj

TABLE XXIV HARAVATI *or* HARAUTÍ *branch of the* CHOHAN *Dynasty*

The Haras are descended from ANURA'JA, *a son of* VISALADE'VA *or more probably of* MA'NIKYA RAI', T *see preceding table*

Anurája, took possession of *Asi*, or *Hansi*, in *Hariána*
A D 1024 Ishtpala, obtained *Asérgarh*, miraculously
Chand Karna
Lok Pal
1192 HAMI'RA, (known in Prithirája wars,) killed in 1192
Kálkarna
Maha Magd
Rao Bacha
1298 Rao Chand, slain with all but one son by Alla-uddín
1300 Rainsi, protected at *Chitor*, obtained *Bhynsror*
Kolan, declared lord of the *Pathár*, (central India)
1341 Rao Bango, took possession of the *Hun* court of *Mynál*
Rao Déva, summoned to Lodi's court, abdicated to his son
Hara Raja, founded *Bundi* country called *Haravati* after him
Samarsi, (Samara Sinh,) conquered the Bhils
Napúji, feud with *Solankhi* chief of *Thoda*
Hamú ji, defied supremacy of Rána of *Mewár*
Birsingh.
1419 Biru
1485 Rao Banda, a famine, 1487, expelled by his brothers
Samarcandí and Amarcandí, who ruled 12 years
Narain Dás, recovers *Bundi*
1533 Suraj Mal, assassinated by *Chitor* Rána
1534 Soortan, a tyrant, banished
Rao Arjun, his cousin, killed in defence of *Chitor*
1575 Rao Rája Surjan, *Chunar*, and *Benares* given to him
Rao Bhoja, separation of *Bundi and Kota*

Bundi branch

1578 Rao Ratan, built Ratanpur, his son Mádhú Sinh receives *Kotá* from Gopináth [Jehángir, henceforward separation.
1652 CHATRA SA'L, took *Kalberga*, under A'urangzéb, killed with 12 princes in battle of Ujain
1658 Bhao Sinh, received govt of *Arangábád* under A'urangzéb
1681 Anurad Sinh.
1718 Budh Sinh, supported Bahádur Shah, dispossessed by *Jypur Rája*.
1743 Omeda, regains Bundi, 1749, with Holkar's aid, retires 1771, dies 1804
1770 Ajít Sinh, *Jugráj*, murders Rána of Mewar
Rao Raj Bishen Sinh, minor, protects Col Monson's flight
1821 Rám Sinh

Kotah Branch

1579 Madhu Sinh, son of Rao Ratan, see above
1630 Mokund Sinh
1657 Jagat Sinh
1669 Keswar Sinh
1685 Rám Sinh.

The Bhota Dynasty

1294 Sri Rinchana, obtained throne by conquest
1294 Kota Ráni, his wife
Udyána deva, her second husband Their minister, Shah Amír, killed the whole family, and succeeded under the name of Sri Shamsh uddín
18 Musulman princes succeeded, names not recorded
Vikhyana Bhatt, overcame the last of these
1298 Jayansara, his son who was overcome by the Sultán
1300 ALLA UDDI'N, Muhammed Shah

[The names of the Muhammedan chiefs, who held possession of the valley, sometimes independently, under the Patan and Moghel Emperors, are so disfigured in Nágari characters, as to be hardly recognizable Jona Rája's list continues to Zein-ul-áb-ud-dín, 815 Hij. whence Sri Vara Pandit continues it to Fateh Sháh, A D. 1477 The *Rájavalí Patáca*, brings on the line to Akber's conquest in 1560, see Muhammedan dynasties]

TABLE XXIII CHOHAN *or* CHAHUMAN DYNASTY, *at Ajmír, Delhi, and afterwards Kotah and Bundí*

The Chohans, one of the four Agnicula tribes, Choháns, Purihárs, Solánki and Pramára, said to have been produced by a convocation of the gods on mount Abu,—supposed of Parthian descent, TOD

B C. 700 ANALA, or Anhul Chouhan, established at *Garra Mandela*
Suvácha,
Mallan, source of Mallani tribe ?
Galan Súi
A D. 145 AJIPA'LA, *Chakravartti*, founder of *Ajmír*, 202 of *Virát* era ?
500 Samanta Déva,
Maha Déva,
Ajaya Sinh, ? Ajipala } W
Virá Sinh,
Vindasur,
Vairi Vihanta,
684 Dola Raí, lost Ajmír to Muhammedans
695 MANIKYA RAI', founded *Sámbhar* hence title of Sámbrí Rao, slain by Moslem invaders under Abul Aás, eleven names only in Jaéga's catalogue, T
Mahásinha
Chandra Gupta, (of Allahabad pillar incription ? See Canouj)
Pratáp Sinh
Mohan Sinh
Setarai
Nágahasta
Lohadhár
Vira Sinh, II
Vibudh Sinh.
Chandra Ray.
770 Harihara Ray, (Hursráj, T) defeated Subactegín.
Basanta Rai.
Balianga Rai, (Belundeo ? T) or Dheruca Gaj, slain defending Ajmír against Sultan Mahmúd
Pramatha Rai
Anga Raja, (Amilla Déva, Delhi inscription)
1016 W. VISALA DE'VA*, from inscriptions, 1031 to 1095, TOD interpolated date in the books of *Chand*, S 921
Saranga Déva, a minor
Ana Déva, constructed the Anah Ságar, at Ajmír.
Hispál, (of Ferishta) father of

* The lath of Firoz, bearing Visala Déva's name, is dated S 1230, in the reign of Vigraha Rai Déva.

834-10 Ajitapíra, set up by the same usurpers.
870-10 Anangapíra, restored to the succession.
873-10 Utpalapíra, last of the *Carcota* race

Utpala Dynasty, 84 *years*, 5 *months*

875-10 A'ditya Vermá, or Avanti Verma, a severe famine
904-1 Sancara Vermá, invaded Gujjara and Rája Bhoja, (? see *Málwá*,)
Cashmír cycle brought into use, 59
922-9 Gopála Vermá, killed youth
Sancata, last of the Verma race
924-9 Sugandhá Rani, recommended the election of
926-9 Part'ha —The *Tatris* and *Ecangas* powerful
941-9 Nijita Vermá, also called *Pangu*, the cripple.
9[illegible]-9 Chacra Verma, civil wars
952-9 Sura Vermá
953-9 Párt'ha, a second time.
954-3 Chacra Verma, do
954-9 Sancara Verdhana
956-3 Chacra Vermá, a third time.
957-7 Unmatti Verma.
959-9 Sura Verma, II

Last or mixed Dynasty, 64 *years*, 4 *months*.

960-3 Yasascara Deva, elected sovereign
969-3 Sangrama Deva, dethroned and killed by
969-9 Parvagupta, slain at Surćswari Xétra
971-3 Xemagupta, destroyed many *Viharas* of Buddhists.
979-9 Abhimanyu, intrigues and tumult
993-9 Nandigupta, put to death by his grand-mother Didda
994-10 Tribhuvana, shared the same fate
996-10 Bhimagupta, ditto
1001-1 Diddá Ráni, assumed the throne herself, adopts
1024-7 Sangrama Deva, II (with whom WILSON's list closes)
1032 Hariraja and A'nanta deva,* his sons, (continued from the printed *Taringini*)
1054 Kalasa
1062 Utkarsha, and Harsha deva.
1062 Udayama Vikrama, son of the latter.
1072 Sankha Rája
1002 Salha, grandson of Udayama.
1072 Susalha, usurper, do.
1088 Mallina, his brother, (end of Kalhana Pandit's list)
1088 Jaya Sinh, son of Susalha, (Jona Raja's list)
1110 Paramána
1119 Bandi deva
1126 Bopya deva
1135 Jassa deva, his brother, an imbecile.
1153 Jaya deva, son of Bopya
1167 Rája deva.
1190 Sangráma deva, III a relation.
1206 Rama deva
1227 Lakhana deva, adopted
1261 Sinha deva, new line, killed by his brother-in-law
1275 Sinha deva, II an usurper, who was himself deposed and killed by the *Mlechas* under Rája Dullach (?)

* The lengths of reigns only are given in the original calculating therefore backwards from Ala-uddin, it becomes necessary to curtail the reign of Hariraja, (52 years,) by about 30 years, to form a natural link with WILSON's date of Sangráma deva. P.

Second Period, Gonerdiya Dynasty, 1013 years, or 378 years after adjustment, W.

B C	1182	Gonerda, III Nága worship resumed,	B. C	388	W.108, P.
	1147	Vibhíshana,		370	
	1096	Indrájita,		352	
	1060-6	Rávana,		334	
	1030-6	Vibhíshana, II		316	
	993	Nara, (Kinnara) persecuted Buddhists,		298	
	953-3	Siddha,		280	
	893-3	Utpalaxa, Adutbulabeh, A A		262	
	862-9	Hiranyáxa, Teernya, ,,		244	
	825-2	Hiranyacula, Herenkul, ,,		226	
	765-2	Vásúcula, Ebeshak, ,,		218	
	765-2	Mihiráçula, invaded Lanka or Ceylon,		200	
	635-2	Vaca,		[illegible]	
	572-2	Xitinanda, (Nandana,)		164	
	542-2	Vasunanda, Vistnand, A A		146	
	490	Naia, II or Baia—Nir, ,,		128	
	430	Axa, Aj, ,,		100	
	370	Gopáditya, a pious brahmanist, Kulvarít, A A		82	
	310	Gokerna, Kuiren, ,,		64	
	253	Narendráditya, Nurundiawut, ,,		46	
	216-9	Yudhisht'hira, surnamed the blind, (see Lunar race?)		28	
		Aditya Dynasty, 192 years			
	168-9	Pratapáditya, kinsman of Vicramáditya,	B C	10	W
	136-9	Jalaucas, Juggool, A A	A D	22	
	104-9	Tunjína, a great famine, Bunjir, ,,		54	
	66-9	Vijaya, Bejeery, ,,		90	
	60-9	Jayéndra, Chander, ,,		98	
B C	23-9	A'rya Rája, of miraculous accession,		135	400, P
		Gonerdiya Line restored, 592 years, or 433 adjusted			
A D	23-3	Méghavahana, Megdahen, A A invited Bauddhas, and invaded Ceylon			
	57-9	Sréshtaséna, or Pravaraséna			
	87-3	Hiranya, contention with Toramána *Yuvarája*, contemporary with Vicramáditya			
	117-5	Matrigupta, a brahman from Ujjain, succeeds by election,			471 W
	122-2	Pravaraséna, invaded Siláditya of Gujerát, (tab xxvii)			476
	185-2	Yudhisht'hira, II			499
	224-5	Nandrávat, Narendráditya, or Lakshman'a,			522
	237-5	Ranáditya, married daughter of *Chola* Rája,			545
	537-5	Vicramáditya, supposed an interpolation (Ujain princes?)			568
	579-5	Báláditya, last of the Gonerda race,			592
		Nága or Carcota Dynasty, 260 years, 5 months			
A D	615-5	Durlabhaverddhana, contemporary with Yezdijird			
	651-5	Pratápáditya, founded Pratápapur			
		Durlabhaca, *car* W			
	701-5	Chandrápíra, or Chandránand, a virtuous prince			
	710-1	Tárápíra, a tyrant			
	714-1	LALITA'DITYA, conquered Yasovarma of Canouj, (? Yasovig-			
	750-8	Cuvalayapíra [raha of inscriptions) and overran India			
	751-8	Vajráditya			
	758-8	Prithivyapíra			
	762-10	Sangramápíra			
	769-10	Jajja, an usurper, deposed by			
	772-10	JAYA'PI'RA, married daughter of JAYANTA of Gaur, encouraged learning, invaded Bhíma Séna of Gujerát, 841?			
	803-10	Lalitápíra			
	815-10	Sangrámápíra, II or Prithivyápíra			
	822-10	Vrihaspati, or Chippatajaya, son of a prostitute, whose five brothers governed in his name.			

TABLE XXII. RÁJAS *of* CASHMI'R, *of the Line of* CÚRU *in the Lunar race worshippers of Nágas or Snakes.*

The Rája Taringini, whence this line is taken, commences with an account of the desiccation of the valley by CASYAPA MUNI *supposed to allude to the deluge* —WILSON, As Rs xv 1

First Period—Caurava race, 1266 *years*

B C 3724 Cashmír colonised by Casyapa, B C 2666, W
Fifty-three Princes, names omitted by Hindu writer, but partly supplied by Muhammedan authority, as follows
Suliman
Cassalgham.
Maherkaz
Bandu-khan, (PANDU of the Lunar line?)
Ládi-khan
Ledder-khan
Sunder-khan,—Hindu worship established.
Cunder-khan
Sunder-khan
Tundu-khan
Beddu-khan
Mahand khan
Durbinash-khan
Deosir-khan
Tehab-khan, dethroned by king of Cabul
Cálju khan
Luvkhab-khan
Shermabaram-khan.
Naureng-khan, conquered China
Barigh-khan
Gowasheh-khan
Pandu-khan, II extended empire to the sea
Haris-khan
Sanzil-khan
Akber-khan
Jaber-khan
Nauder-khan
Sanker-khan, slain by
Bakra Rája
an interval ensues, and authentic history commences with
2448 Gonerda, I Kali Yuga, 653 Gonanda or Agnand, a relation of Jarasundha, 1400, W B C 1045, P.
Damodara, 1st.
Gonerda, II
Thirty-five Princes, names forgotten
1709 Lava, (Bal-lava) Loo of Muhammedan historians B C 570, P.
1664 Causésaya
1660 Khagéndra
1600 Suréndra, cot with Bahman of Persia
1573 Godhara, Gowdher, A A
1537 Suverna, Suren, do
1477 Janaca, Jenak, do
1471 Sachinara, Seijuner, do
1394 ASOCA, established Buddhism *(See pages* 78, 100, B. C. 250?)
1332 Jaloca, adopted castes
1302 Dámodara, II a Saiva, transformed into a snake
1277 Hushca, Jushca, Canishca, } Tartar Princes, re-established Buddhism.
1217 Abhimanyu, an orthodox Hindu, B. C 423, W. B. C. 73, P.

Maurya Dynasty, governed 137 years

B C 315. W CHANDRAGUPTA, Sandracottus of Greeks, 1502 J.
Várisára, Vindusárá
ASOKA, patron of the Buddhists, 330, Bud Chron
Sujásas, Sujaswa, T Culáta, WD
Dasaratha, *car* T WD
Sangata, Bandupalita, WD
Salísuka, Indrapálita, WD
Devadharma, WD
Somasermá
Satadhanwa
Vrihadratha

Sunga Dynasty, 110 years

178 Pushpamitra, 1365, J
Agnimitra,
Suyeshtha, } Ustimitra, T
Vasumitra,
Ardraka, Abhadraca, WD Badraka, T
Pulindaka
Ghosha-vasa
Vajramitra, Vicramitra, WD
Bhagavata
Devabhúti

Kanwa Dynasty, 45 years

66 Vasudeva, 1253, J *car* T
Bhumitra cot of Vikramáditya, T
Narayana, Parana, T [*Sipraka*)
Susarma, (WILFORD supposes interval of 150 years before

TABLE XXI ANDHRA *or* VRISPALA DYNASTY, *of Andhra, (Orissa ?) or Telingana, in continuation of the Magadha line*

(See WILFORD's comparative list from the Bhágavat, and three other Puránas, in the 9th Vol of As Res) The 30 generations occupy 456 years

B C 21 Sipraka, Balin, Balihita, B C 908, J A D 190, WD
Krishna
Sátakarni
Purnotsanga, Paurnamása, } *car* W
Satakarna, ..
Lombodara
Vivilaca, Apilica, WD
Megha-Swati
Putúmán
Arishtakarna, *car* Bhág Purána
Hála
Puttalaka, Tiluk, T
Pravillasena
Sundara-Sát-karna, II
Chakora-Sát-karna, III.
Siva-swati
Gomatiputra, GAUTAMI, WD A D 500
Pulimán Purimat
Sát-karní, IV *car* Bhág Purána
Sivásrí
Sivaskanda
408 Yajnasrí Yeug nai of Chinese ? WD
Vijaya
A D 428 Chandra-srí, or vijaya, last Magadha king, 300, J 546, T
Pulomarchhi, Poulomien of Chinese ? WD dies, 648, A D.
Salomdhi, T cot. of Bappa Ráwal of Mewá, A D 720 ?

TABLE XX KINGS OF MAGADHA, *or Central India, chief Behar, of the* INDU, *or* CHANDRA VANSA, *Capital, Rajagriha*

Barhadratha Dynasty, (see Tab xviii)

CURU	Cushágra
Sudhanu	Vrishabha
Suhotra	Pushpavana.
Chyavana	Satyasahite
Kritadhà	Urja
Visruta	Sambhava
Uparichara	

Line of Pandu, (*brought on from page 97*)

JARASANDHA, *cot of Yudhishthira and Krishna*, B C 3101 ?

B C 1400, W SAHADE'VA, Parixita born, *great war ends*
Márjári, or Somapi, W
Srutaman
Avutriya
Nirámitra
Suxatra
Vrihat-karma, or -sena
Senajit
Srutanjaya
Vipra
Suchi
Xemvi
Suvratha
Dhermi-sutra
Nribhrata, WD
Susrami
Drirhaséna, Vrihadséna, WD
Sumanti
Suvalu, Suddhamva, WD
Sunita
Satyajit
Viswajit
915 Ripunjaya, 700 WD a Buddha born in his reign, As Rs II 138

Sunaka Dynasty, Kings of Bharatkhanda, reigned 128 *years*

915 Pradyota, B C 700, WD 650 ? Bud Chron 2100, JONES
Palaka
Visakhyapa
Janaka, Rajaca or Ajaca, WD
Nandiverddhana, or Takshac, T

Sisunágas or S'esnágs, reigned 360 *years*

777 Sisunaga, 1962, T 550, WD 472, B } *car* WD
Káka verma,
Xemadherma
Xetranja
Vidhisára
AJATA SATRU, 450 WD 551 Bud Chron of *Ava*
Darbhaka, Dásaca
Udayaswa, Udási, Ajaya
Nandiverddhana
Maha nandi, Mahabali, WD 355
Sumalya, or Vikhyaat, T
415 NANDA, 1602 J 340, W
The nine Nandas, reigned 100 years

TABLE XIX. PANDU DYNASTY *of* INDRAPRESTHA, *or Delhi*

Continued from the line of PURU *of the Chandra vansa, or Lunar line, and collateral with the Magadha Princes, descending from* JARASANDHA, *of Tab* XX
According to the Bhágavat Purána, H *According to the Rájavali*, T

YUDHISTHIRA, 1*st King of Indrapreshta—no issue*

B C 3101 J	Parixita, son of ARJUN, succeeds		Parxita
1300 W	Janamejaya, W		Janamaja
1100 T	Satanika,		Asmund
	Sahasranika, *car* W		Adhuna
	Aswamedhaja,		Mahajuna
	Asimakrishna, Nichakra, W		Jesrita
	Némi, king of *Hastinapur*, (washed away)		Dehtwana
	Chakra, built *Kausambhi*		Ugarsé
	Ukata, king of *Kausambhi*, Ushna, W		Surséna,
	Chitraratha,		Sutasshama
	Kabiratha, *car* W		Resmaroja
	Vrishnemana, Dhrihtimán, W		Bachil
	Susena,		Sootpala
	Mahipati, *car* W		Nathurdeva
	Sunitha,		Jesrita
	Sukhinala,	Richa, W	Bhupata
		Nrichaxu, W	Sovansa
		Sukhavatí, W	Medivi
	Paripliwa,		Sravana
	Sunaya,		Kíkan
	Medhabi,		Pudharat
	Nripanjaya,		Dasunama.
	Durba, Mridu, W		Adelika
	Timi, Tigma, W		Huntavarnu
	Vrihadratha,		Dandapala
	Sudasa, Vasudana, W		Dunsala
	Satanika,		Sénpála
	Durdamana, Udayana, W		Khevanraj, *deposed, and Pandu line ended* T
	Bahinara, Ahinara, W		
	Dandapani,		
	Nimi, Niramitra, W		
	Xemaka, *car* W		

The Rájavali continues the Indrapreshta sovereigns of the Lunar race, through three more Dynasties, T *viz*

Second Dynasty, 14 princes, *reigned* 500 years	*Third Dynasty*	*Fourth Dynasty*
Viseiwa, (contemporary with Sisunaga? T)	Mahiaje, Mahiaje of Ferishta? T	Sindhwaja
Surien	Srísena	Mahánganga
Sírsah	Mahipála	Náda
Ahangsal	Mahavali	Jewana
Vyerjíta	Siupvarti	Udiya
Durbara	Netraséna	Jehala
Sodpala	Samukdana	Ananda
Sursana	Jetmala	Rájpála, invaded Kemaon, and killed by Sukwanti, who seized on Indrapreshtha, whence he was expelled by Vikramáditya, T
Singraja	Kálanka	
Amargoda	Kalmana	
Amarpala	Sirmandan	
Sérbché	Jeywanga	
Pidharat	Hergúja	
Madpál, slain by his Rajput minister	Hirasena	
	Antinai, resigned to his minister	

Line of Puru

PURU, king of *Prátishthána*
Janamejaya, king of *Antarveda*
Prachinwat,
Pravira,
Manasya,
Abhayada,
Sudhyumna,
Bahugava,
Samyáti,
Dhamyáti,
Raudrasva,
Ritéya, *car* W
Rantibhara, Rantimara, W
Sumati, Tansa, W
Raibhi or Ailina, *car* W
Dushmanta or DUSHYANTA, husband of *Sakuntala*
BHARATA, king of *Antarveda* and *India*
Vitatha, or Bharadwaja, adopted
Manya,
Vrihatxetra,
Suhotra,
HASTI, built *Hastinapur*
Ajamidha, reigned at do
Rixa, do
Samvarana
KURU, from whom also descended the *Magadha* princes, see tab xx
Jahnu,
Surathi,
Viduratha,
Sarvabhauma,
Jayatsena,
Radhika, Arávi, W
Ayutaya, Ajita, H
Krodhana,
Devatithi, *car* W
Rixa,
Bhimasena, *car* J
Dilipa,
Pratipa,
SANTANU, incarnation of Varuna, *from whom* 2 *sons*

Dhritarishta, Vichitravirya, *whose*
Duryodhana *daughter married*
VYA'SA, *and bore*
PANDU, *whose wife bore the five Pandavas*, viz
1 YUDHISHTHIRA, (see Table xix)
2 ARJUNA, father of Parixita, (see do)
3 BHI'MASENA, no descendants
4 NAKUL, and } founded the *Maga-*
5 SAHADEVA, } *dha* line, (Tab xx)

Line of Yadu

YADU, excluded from succession
Kroshta,
Vrijinavan,
Swáhi,
Rishadyu,
Chitraratha,
SARAVINDU,
Prithusravas,
Tamas, or Dharma
Usanas,
Síteshu, Síteyas, W *car* H
Ruchaka, Rukshina, W
Kavilha, W *car* J
Parávrata, line extinct
Jamodhya, Jyamagha, W, from Saravindu by another line
Vidarbha,
Krothi,
Kunti,
Dashti, Vrishni, W
Nirvriti,
Dashartha,
Vyoma, Víjaman, W
Jimutra,
Vikriti,
Bhímaratha,
Navaratl
Dasaratha,
Sakuni,
Kusambha,
DEVARATA,
Devaxetra,
Madhu,
Anavaratha,
Kuru-vatsa,
Anurathi,
Purubotra,
Ayu, Angasa, W
Satwata, (several branches
Andhaki, ditto
Bhajamána,
Viduratha,
Suri,
Sami, Simana, W
Pratixetra,
Swayambhuva,
Hridika, (several branches)
Devamida,
Sura, (numerous progeny By Marusha)
Vasudeva, the eldest, who had 13 wives.
KRISHNA and BALARA'MA, with whom this line becomes extinct, by quarrel of the *Yádus*.

Synchronisms of the Solar and Lunar races, T

T { Budha of the Lunar race married Ila, the sister of Ikwaku, s 1
T { Harischandra, s 1 cotemporary of Parasurama, of lunar line
Sagara, cot of Taljanga, of do
Ambarisha, cot of Gadhi, founder of Canauj

Kali yuga—iron, or *fourth age*, 3101 B C

Urukriya, Uruxepa, W
Vatsa, W *car* J
Vatsa-vriddha, Vyúha, W
Prativyóma,
Bhánu, *ca* W
Dévácar *car* T
Sahadéva,
Vira, *car* W T
Vrihadas'wa
Bhánumat, *Bahman*, Longimanus of Persia? T
Prat'icás'wa, *car* W
Supratíca,
Marudéva,
Sunaxatra,
Pushcara, Kesinara, W
Antaríxa, Rekha, T
Suta, Sutapas, Suverna, W
Amitrajit,
Vrihadrája,
Bahi, Dherma, W
Kritanjaya, first emigrant from Kosala, (Oude) and founder of the Suryas in Saurashtra, T
Rananjaya,
Sanjaya,
Slócya, Sakya, W T
Suddhóda, Kroddhodana, W Sudipa, T
Lángalada, Sangala, T Ratula, W
Prasénajit,
Xudraka, Romika, T
Kundaka, W *car* J
Surita, W *car* J
Sumitra, B C 2100, J 57, T The last name in the *Bhágavat Purána*, said to be contemporary with VIKRAMA'DITYA? T from this Prince the Mewár chronicles commence their series of Rajás of Saurashtra, see Table XXVI

TABLE XVIII CHANDRA-VANSA, INDU-VANSA, *or* LUNAR RACE, *who reigned in Antarvéda and Kasí, afterwards in Magadha, (Behar,) and Indrapreshtha, (Delhi)*

ATRI', Muni
SOMA, (*Lunus*, the Moon)
BUDDHA, (Mercury) married *Ilá* daughter of the Sun
AILAS, or Purúravas
AYU, Kings of Kasi also descended from him, (see below)
NAHUSHA, (*Devanahusha*, Dionysos, Bacchus, WD)
YAYATI, father of Puru and Yadu, (see next page)

Kings of Kási, (Benares)

Xetravriddha, son of AYU	Ritadwaja.
Subatra	Alarka
Kási	Santati
Kasi	Sunitha
Rashtra	Suketana
Dirghatama	Dharmaketu
Dhanwantra	Satyaketu
Ketumana	Dhrishtaketu
Bhimaratha	Sukamara
DIVODA'SA, becomes a Buddhist,	Bitihotra
Dyamana	Bharga
Pratardan	Bhargabhumi, (end in Bhágavat, P)

Ayodhya rájas, continued

Ayutayush,
Ritaperna,
Nala, T } *car* J H
Sawakama, W T
Saudá
Kalmáshapada, W H *car* J T
Asmaka,
Múlica, Harikavacha, W
Das'arat'ha,
Aídabida, Ilivita, W
Vis'wasaha,
K'hatwánga, Kharbhanga, T
Dirghabahu,
Raghu,
Aja,
Das'arat'ha, H W
Ra'ma, A C 2029, J 950, B 1100, T } his brothers Bharata, Lakshmana, Satroghana,

Dwápár yuga or brazen age

Kusha, Lava, T
Atithi,
Nishadha,
Nabhas, or Nala, T
Pundarika,
Xemadhanwas,
Dévanica, Dwarika, W
Ah'inagu, Ahinaja, W Hina, H
Kuru, W *car* J H
Paripatra,
Dala, W Bala, H
Rana-chhala,
Uktha W *car* J H
Vajranabha,
Arca, *car* W T H
Sugana, Sankhanábhi, W
Vidhriti, Vijuthitábhi, W
Viswasaha, H W Visitaswa, T
Hiranyanabha,
Pushpa, Pushya, H
Dhruvasandhi, *car* T
Suders'ana, *car* W
Agniverna, Apaverma, W
Sighra,
Manu, Maru, W T H
Prasusruta,
Sandhi, Susandhi, W
Amers'ana, Amersha, W
Mahaswat, Avaswana T
Vis'wabháhu, } Viswasava, T
Prasénajit, } *carent*, W
Tacshaca, }
Vrihadbala,
Vrihadsan'a, B C 1300 Jones

Mithila rájas, continued

Subhasana
Sruta
Jaya
Vijaya
Ritu
Sunaka
Bitahalya
Dhriti
Bahulaswa
Kriti
Mahabasi

Solar line of Visala, *(also descended from Sradha-deva)*

Dishta, king of Vesala
Nabhaga
Bhalandana
Vatsaprité
Praag u
Pramati
Khanitra
Chaxusha
Bibingsati
Rambhu
Khanimetra, } *car* Vansalata
Dharmika, }
Karandhama
Adixita
Maruta
Dama, } *car* do
Rajyavarodhana, }
Sudhriti
Nara, *car* do
Kebala
Dhundhumana or Bandhuman
Begawan, } *car* do
Budha, }
Trinavindhu *
Besabiraja, or Visala, who founded *Vaisali*, (Allahabad)
Hemachandra
Dhumraxa
Sangyam
Sahadeva, *car* V L
Krisaswa
Somadatta
Sumati, (ends V L)
Janamejaya

* His daughter, Brabira, married Visvarawa Muni, the father, (by another wife, Nikaxá,) of Ra'vana the demon king of *Lanka* or Ceylon, afterwards killed by Ra'ma.

professional nature To a brief geological description of the island, I have added such other matter connected with the condition, and manners of the inhabitants as appeared deserving of mention, either from its novelty, or the value it may possess in the scale of utility

With respect to the geology of *Rambree*, I fear there will be found little that is new or interesting, the rocks that have been hitherto observed are chiefly of the newest kind, or owe their origin to volcanic agency these with the alluvial and diluvial deposits will be found to cover the greater part of the island Several mountainous ranges occur in *Rambree*, and their general direction appears to be from N N W to S S. E The elevation of these above the plain is not very great, varying from 500 to 1500 feet for the principal extent, and not exceeding 3000 feet at the highest point Other smaller hills are seen to branch off from the larger ranges, forming those basin-like cavities that afford space for the rice cultivation

Commencing with *Khyouk Phyoo**, situated on the N W point of the Island of *Rambree*, I shall proceed from thence along the western coast, passing in gradation to such other places as I may have visited, or have become familiar to me from the report of others

The military station of *Khyouk Phyoo*, which takes its name from a village distant three miles from the cantonment, stands upon the verge of a low sandy plain, which extending from the south towards the sea and harbour is bounded on the S W by a low sandstone range, and on the E by a small creek, which separates it from the rich alluvial ground that lies at the base of the *Nagadong* and *Oonkyoung* hills Upon the surface of this plain there exists a vegetable mould not exceeding four inches in depth, and this is succeeded by a bed of sand and shingle, the sand in some instances assuming a grey or greenish appearance, and the shingle in every respect similar to that found upon the beach At the village of *Townyeen*, in front of the parade, a chalybeate spring is supposed to exist from the presence of carbonate of iron,—the sand in this place has a ferruginous aspect, but the space occupied by it is very limited, the ochre appearing at the surface, and invariably succeeded by the grey sand above alluded to

As has been already observed, a sand-stone range extends itself on the S W side of the cantonment There are in fact two ranges running parallel to each other, the interval being taken up with patches of rice cultivation, and both are connected with the reefs extending under the sea to the N W and marked off by the *Reef Buoy*. Taking a direction to the S E they are terminated abruptly on the margin of the creek which bounds the station of *Khyouk Phyoo* on

* *Khyouk Phyoo*, White Stones, (Shingle)

that quarter The structure of both is alike throughout, the sandstone occurring in large disintegrated masses, rounded by the weather, and loosely embedded in the argillaceous soil that forms the surface of these hills Here and there some appearance of stratification is observed, the sandstone dipping to the S W at an angle of 75 or 80°. This order of stratification is most perceptible on the sea beach, where the ranges in question are united with the reefs The sandstone is here of a grey colour, of a somewhat laminar structure, and in some places so much decomposed by the action of the water as to approach the nature of an aluminous schist Progressing with the range, it assumes a brown or yellow colour, is of a fine texture, and occasionally interspersed with minute scales of mica The surface of these hills being composed of a stratum of clay, the ground at their base is continually receiving a deposit of the same nature, affording opportunities for cultivation, and forming a striking contrast with the soil in the immediate vicinity of the cantonment This alluvial deposit sometimes attains to the consistence of a yellow clay, sufficiently plastic for the fabrication of bricks and earthen vessels Beyond this sandstone range, and bordering upon the village of *Khyouk Phyoo*, the ground is still of that low diluvial nature which indicates the transition it has undergone, in some places, intersected by narrow creeks accessible to the tide, and every where covered with a thick jungle of mangroves and marine plants At the village of *Khyouk Phyoo* there occurs an isolated hill, composed entirely of a soft grey sandstone, which had once formed part of some continued range, and was subsequently torn asunder by the sea on its retiring from the island, it is one of the many instances that may be observed in *Rambree* of the denudating effects of the waters of the ocean at a period that they were subject to some violent commotion, produced probably by the sudden rise of mountains from beneath

January 12th, 1834 —Leaving *Khyouk Phyoo* at an early hour, and proceeding along the beach with the Saddle and Knot Islands on the right, my route lay towards the villages of *Membraan* and *Kyouprath*, loose blocks of standstone, rounded by the sea, and apparently forming part of an under-stratum, extending to the *Saddle* and *Knot Islands*, cross the beach in several places for the first few miles of the road The sandstone is of a grey colour, soft, gritty, and frequently intersected with veins of calc-spar, I observed crystals of iron pyrites on the surface of some of these stones, and red spots on others, perhaps the result of aqueous deposition The sandstones in Arracan appear to contain much iron, in different stages of oxidation

Still following the sea-shore, at the base of a long sandstone range, whose utmost elevation above the plain cannot exceed 300 feet, I passed the village of *Membraan*, the locality of some old Petroleum wells, which I am told no longer afford a sufficient supply of oil to induce the working of them From *Membraan* to *Kyouprath*, the road lay along a beautiful beach, covered with a fine yellow sand and shingle I observed the prints of tigers' feet in several places on the route, and in this place they were particularly numerous From the circuits the animals had made on the beach, they would seem to have been sporting with each other by the moonlight, a thing not unusual with the male and female of the Feline species during the season of love The ground on the left was higher and more open than it had hitherto been on the road, and covered with a fine green sward Beyond me was the village of *Kyouprath*, prettily situated on an eminence over the sea-shore, and at no great distance in its rear, the range of sandstone hills, between which and the village I observed a few acres of paddy ground · The hills were in some few places cleared of the forest and underwood, and presented small patches of open ground devoted to the cultivation of cotton. It was near 10 o'clock when I reached *Kyouprath*, and as my elephants were tired, and it was getting warm, I was not unwilling to make a halt at the place for the remainder of the day After selecting a spot for the elephants, my next care was to seek quarters for myself, and for this purpose, I requested the villagers, who had already assembled to have a near view of the *Inglee**, to direct me to the house of the *Rovagony*, or head-man of the village After my request had been several times repeated, before it was understood, I at length found myself seated in his house The *Rovagony* was at work in the field, but his wife, a cheerful-looking woman, was present, and very kindly gave me a mat to lie down upon, some fire for my cheroot, and a fowl for my curry, on the assurance that full payment should be made for every thing received I fell asleep upon the mat, and did not rise until the sun was nearly down, when I took a stroll upon the beach, and bathed in the sea A few blocks of sandstone, and a conglomerate, consisting of a paste of sandstone, with enclosed nodules of a calcareous earth, lay upon the beach, some of these rocks had a scoriaceous appearance, were encrusted with crystals of iron pyrites, and bore evident marks of igneous origin Returning to the village, I sat down on the green, to witness a wrestling match between two young Mughs This is a game that they are very fond of, and I have never seen better wrestlers among any race of people The vigorous frame

* Inglee, Englishmen, general term for an *European*

of the combatants promised a treat of no ordinary kind, and I was not disappointed, it was truly astonishing to witness the dexterity of the parties in their endeavours to throw each other The struggle was long and violent, ere it was terminated by the fall of either party, it was impossible, however, that both should be declared conquerors, one poor fellow was thrown, and fairly held down at the mercy of the victor One of my Mahouts, a great stout man, and a native of Chittagong, was present, and had the impudence to speak lightly of the *science* He was immediately challenged by a young Mugh, who was far his inferior in size, as well as age They wrestled, and the Mahout was thrown, once—twice—and three times, to his very great confusion, and the chagrin of his *caste* Boxing, wrestling, and the *Keelôme*, are among the favourite amusements of the Mughs The latter game is not unlike our "battledore and shuttlecock," with this difference, that the ball, which is hollow, and made of cane, is impelled into the air by the foot, instead of by the hand. Half a dozen young men form a circle, and it is the aim of each individual, towards whom the ball falls, to keep it up in the air as long as he can, not only the foot but the knee is brought into action, much dexterity is displayed, and he that keeps the ball up longest is entitled to the greatest credit In addition to the games of more general occurrence, the Mughs, like the rest of their neighbours, have their own peculiar festivals, and modes of celebrating them The principal of these are—

1 *Sangrain-Kyadeh** —This occurs in the month of *Tagoo-la*, (April,) at the commencement of the new year, and during this season, the games of *Reh-loundee*, and *Léh prinedee* are held The former very much resembles what is observed in our own country on New-year's-day. The women throw water over the men, who generally return the compliment, no distinction is paid to rank The water is thrown indiscriminately, and with an unsparing hand, upon high and low, and all seem determined to enjoy a season that permits of such unlimited freedom The *Léh-prinedee* is the boat-race, which is held at the same time a number of boats assemble in a broad creek, and start for a certain place, each striving to outstrip the other The boats are impelled with oars, and those that are light and well manned, have a surprising speed upon the water. The shouts of the rowers, the strains of wild music, and the gay appearance of the boats

* The whole of these festivals owe their source to some fabulous narrative, preserved in the sacred writings or other books, and religiously believed by an ignorant and superstitious people I regret that I am, from my very imperfect acquaintance with the language of this country, debarred an opportunity of transcribing any part of these.

decked out at the stem with branches of plantain trees and garlands of flowers, give a most pleasing and striking effect to the scene. Returned to the place from whence they started, a donation in money, or a piece of silk, is generally presented to the winner by the master of the ceremonies Nautches and entertainments succeed the boat-race, and the festivities are closed with offerings to the priests and the *Rautoo**, who is on this occasion carefully washed and adorned

2. *Oobho-chounde.*—This festival is held in the months *Wayho*, (July,) *Wagoung*,(August,) *Tantha-leng*, (September,) and *Sadyne-Kyot*, (October) The people fast for a few days in each month, and proceeding to the Kioums†, dressed in their smartest attire, prostrate themselves before the Phraa‡, and make suitable offerings to the priests.

3. *Wingbauh-póc* occurs in the month *Sadyne-Kyot*. (October)—By way of celebrating this festival, a labyrinth is constructed by means of bamboo fences, so placed, as to make the path very narrow and intricate from the numerous turns it takes. People of both sexes, and of all ages, flock to this place in the evening, dressed in their smartest clothes, old as well as young thread the labyrinth, enjoying the fun that is occasioned by their several mistakes in endeavouring to get out of it. A temple is erected in the centre of the labyrinth, and within it are four images of the Buddha saint, to which the passengers severally make obeisance, placing small lamps upon different parts of the building for the purpose of illumination The evening of each day generally closes with a display of fire-works, and the *Bouthséy*, a ludicrous dramatic representation, very much resembling the *Putlé* of India In addition to the above, a ceremony, termed the *Puddéysah*, is performed during the month of *Sadyne-Kyot*. This consists in the construction of a frame-work, intended to represent a tree, which is carried about upon the shoulders of the people, and upon it are hung such bequests as are made by individuals, in the shape of cloth, silks, dishes, &c. the whole of which are intended for the use of the inmates of the *Kioums*. Much is collected in this manner, it being considered highly meritorious to make even the smallest gift on this occasion. The procession is generally accompanied by dancers and musicians, whose services are wholly gratuitous, for whatever they may individually collect, is, in like manner, devoted to the necessities of the *Kioum*.

4. The *Ruttah-bóeh* is held in the month of *Taboo-dwar*, (February,) when the cold weather is supposed to have ended. A small tree is placed upon a car that had been constructed for the purpose, and to each end of this vehicle ropes are attached. The people assemble at the place from all quarters, and two parties (generally selected from

* Image of Gautama. † Monasteries. ‡ Gautama.

the inhabitants of two neighbouring villages) are formed for a trial of strength one party pulling against the other The successful party is allowed to draw the car away to their own village, where it is finally consumed

Several other wrestling matches were made, until it became too dark to prolong the game I now returned to the village, and entering my host's house, found a supper waiting my arrival It was laughable to observe the curiosity of the villagers to see an *Inglee* at *the feeding hour* Men, women, and children mounted the *michaun*, to the very great hazard of its coming down There was in the appearance of my visitors nothing of that fear and abject submission so characteristic of the natives of India The women, as well as the men, stood gazing upon me, and all joined in the laugh excited by the European mode of handing the food to my mouth, to them so incomprehensible and ridiculous The children were not afraid to approach, and I was not so uncivil as to refuse them a share of the viands they apparently coveted It was received with pleasure, and offered in return to their parents A mother had a very pretty infant at her breast, and I was surprised to see her give it a piece of bread that had been previously chewed I found on inquiry that a child is fed with a mouthful of boiled rice, reduced to a state of mucilage, on the second day of its birth. This it is said conduces to its vigour, and hastens the period for its final separation from the breast

January 13th —The sun had not risen before I was seated on my elephant, and setting out on my journey to *Ladong* Leaving *Kyouprath*, and proceeding towards *Kaeng*, the route at first lay along the sea-beach, and afterwards over a rugged piece of ground, covered with blocks of sandstone and a conglomerate, which appear to have been borne down from the superincumbent hills, by the violence of the waters on their escape to the ocean These rocks very much impeded my progress, rendering the motions of the elephant rough and tedious to an uncomfortable degree At the further extremity of the plain, and bordering upon the sea-shore, the remains of a few mud volcanoes may be seen They have the appearance of extensive mounds, covered with green sward, and (as is invariably the case with all the mud volcanoes in Arracan) have a few Jhow trees growing upon their sides Proceeding to the spot for the purpose of examination, I could perceive no further evidences of present activity than what was indicated by the existence of a spring of muddy water on the summit of each volcano, the water rising in bubbles, if at all disturbed, owing to the quantity of carbonic acid gas it contained The mud was of a grey colour, and impregnated with much calcareous matter.

Emerging from the plain, the traveller may either proceed to *Kaeng* through the interior, viâ *Maen-grah* and *Moreng*, or take the direction of the sea-beach In either case, the features of the country are much alike, sandstone is still the prevailing rock, and in some instances, when the upper stratum of clay has been washed away, it assumes the substance of an entire hill

Leaving *Maen-grah* by a narrow path, almost concealed from view by the heavy jungle protruding on each side, I observed a bird that answers in description to the *Buceros Homrai* of Nipal. Indeed, it so closely resembles a drawing of the Buceros published in Part 1, Vol xviii. Asiatic Researches, that I cannot for a moment doubt its identity with that bird I shot one of the many that were hopping about the branches, making a disagreeable noise, their flight was heavy and awkward, owing apparently to the shortness of their wings opening the stomach, I found it filled with berries resembling those of the *Peepul* and *Burgh'hut* trees, this would seem still further to establish the opinion advanced by Mr Hodgson, that the *Buceros Homrai* was not a carnivorous bird. Passing through the large village of *Moreng*, the road to *Kaeng* lay over an extensive plain, covered with clumps of trees, the most conspicuous among which were the *Gurjan*, *Tilsah*, and wild *Peepul*. Large flocks of the mountain minah were passing over-head, giving the clear chearful chirrup peculiar to these charming birds, and I observed a species of jay that was new to me It was of an inferior size to the common Indian jay (*Neel-kaunt*), and of a different colour, but from its shape, flight, and general appearance, there was no mistaking its genus The plumage of the head, back, and wings was of a pea-green colour, the under part of the belly and tail, of a lighter green, and the legs and bill, yellow *Kaeng* is prettily situated upon high ground, not far removed from the sea, and at the mouth of a creek, which separates it from the district of *Ladong*, surrounded by extensive plains, clear of low jungle, and diversified with rice-fields, gardens and plots of indigo sowings This village is superior to any one that I have seen on the island, both with respect to situation, and the general appearance of neatness and comfort that prevails throughout the place Approaching *Kaeng* by the sea shore (in preference to the route above described), the remains of several mud volcanoes may be seen upon the hills to the left The undulating appearance of these mounds, covered throughout with a beautiful green sward, and studded with a few *Jhow* trees, has a striking and agreeable effect amidst so much jungle and similarity of aspect otherwise common to these hills.

At the foot of the volcano, adjoining the sea-beach, I perceived several boulders of a rock, resembling *clink-stone*, it was very hard and sonorous when struck with the hammer, of a sea-green colour, and intersected with veins of calc-spar; it was not improbable that it had been at one time ejected from these volcanoes in a state of igneous fusion, along with other substances.

Crossing the *Kaeng creek*, I entered a district of *Ladong*, extensive plains devoted to the cultivation of rice, and only separated from each other by the narrow strips of *Giryun* trees and underwood, mark the fertility of this part of *Rambree*, the soil is so exceedingly fruitful that the principal exportations of rice from the island are derived from *Ladong*. There are many Petroleum wells in this district, some of which yield a very fair supply of oil. The whole of the wells known to exist in the islands of Rambree and Cheduba are farmed by Government, and sold annually to the highest bidder, I conceive it would be (in the end) far more advantageous to Government, was the sale to take place *every three years*, instead of *annually* was more labour bestowed upon these wells, the produce would be greater, but the present system deters a purchaser from devoting his labour to the production of an article that may become the property of a more successful candidate, before he shall have received any return for the capital he had already invested in them The wells were sold this year for 120 rupees I am told that six only of the *Ladong* wells are worked One well is said to yield as much as three quart bottles of oil (or 2¼ seers) per diem, and allowing that the remaining five are nearly as productive, the quantity of oil collected during a season (from the 1st November to the 1st June), would amount to as much as 70 *maunds*.

The oil is sold in *Ladong* at the rate of one-half tillia per rupee The weight of a *tillia* varies from nine to sixteen seers The *Ladong tillia* of oil is said to be as much as can be contained in 18 bottles or 13½ seers. The oil is much used, especially for burning, it burns long, and gives a fine clear flame, it has, however, a very disagreeable smell, and is so highly inflammable, that it must be used with caution.

The oil produced on the Island of *Cheduba* is not so abundant or so pure as that of *Rambree*. One of the Petroleum wells in *Ladong* is said to exist on the site of a dormant mud volcano—a circumstance not at all improbable, when it is considered, that the gases and inflammable substances forming the constituent parts of either, are, as far as has been hitherto discovered, essentially alike The soil thrown up from these wells is highly bituminous, and in some instances abounds with very beautiful crystals of iron pyrites.

I had made up my mind to put up at the *thanna* of Ladong, so took the nearest direction to it. The path lay at the foot of a range of sandstone hills, to the left of the plains, on the summit of this range stood a temple dedicated to Gautama, and in front of it the long pole usually erected near such places of worship. The character of the rock was such as had been hitherto observed, with this exception, that a few rolled pieces of *chert* and *stalactites* were visible in a few places, strewed upon the surface. I was fortunate enough to shoot a very beautiful species of green pigeon in these hills it was as large as the wood-pigeon of Europe, and had a superb plumage, the colour of the head, back, and tail were of a very dark-green, while the wings and belly presented a bright azure colour.

I had not proceeded far on my way towards the *thanna*, when my attention was roused by the sound of music and the report of fire-arms Entering upon the plain, I perceived a multitude of people apparently met on some extraordinary occasion I drew near, and learned that they had assembled to perform the funeral rite of a *Phoongree*, who had lately died These high priests of Buddha denominated *Phoongrees*, are common in Arracan, and much revered by the laity, they are never known to interfere in the domestic affairs of the people, or exercise that spiritual dominion so generally usurped by the ambitious priesthood of other countries Confining themselves entirely to the exercise of their religious duties, they are seldom seen beyond the precincts of the *Kioum*, unless it be to make their morning rounds through the neighbouring villages, accompanied by the boys, to whose keeping are committed the voluntary contributions of the inhabitants It is worthy of remark that these daily excursions are made not so much for the purpose of obtaining supplies for the inmates of the monastery, as to gratify the wishes of the villagers, who are desirous of enjoying this opportunity of testifying their respect and attachment for the ministers of their religion The discipline of the *Phoongrees* is extremely rigid, and not unlike that preserved in the monastic sects of Europe To a life of celibacy is added the injunction of not holding any communion whatever with the female sex; and so strictly is this precept adhered to, that a *Phoongree* will neither converse with a female, or receive from her hands the offering she may wish to present to him. The dress of the *Phoongree* is confined to an orange-coloured mantle, which extends from the shoulders to some little distance below the knee; his head is closely shaved, and always uncovered. He sleeps in the *Kioum*, upon a mat, with no other covering than that afforded by his mantle, and his diet is of the simplest kind, one

meal a day being considered sufficient for his subsistence The food is cooked by some of the scholars of the *Kioum*, or by the newly initiated of the sect, and those *Phoongrees* who are desirous of maintaining a character for peculiar abstinence, will not even express a desire to satisfy the claims of hunger, however pressing they may be, waiting patiently until such time as food may be presented to them by some inmate of the *Kioum* with these are many other observances, all enjoining an uninterrupted course of humiliation and abstinence

Some of these monasteries are very large, and contain a great many monks, as well as the boys whose education they superintend. They are erected by the villagers, and supply such accommodation as is required In a remote part of the interior of the *Kioum* is an image of *Gautama* Before this image the Phoongrees prostrate themselves twice a day, and never leave the building without making an obeisance, and intimating their intention to the *Routoo* a similar duty is performed on their return This image is composed of more or less costly materials, according to circumstances In some *Kioums* I have seen the *Phraa* entirely covered with gold or silver leaf, in others again, it is of wood or stone, with little or no ornament whatever Flowers, rice, and parched grain are the offerings generally made at the shrine of *Gautama*, either by officiating priests, or any of the laity, as a religious observance, and for the attainment of some particular object of desire

The assumption of the monastic garb is voluntary, the person who expresses a wish to become a *Phoongree* is admitted into the convent (without regard to country, or the religion he may formerly have professed), provided he stipulates his readiness to conform to the Buddhist observances in matters of faith and discipline, and there exists no impediment (such as his having a family to support, or his not having obtained the permission of his parents, &c), to his abandonment of earthly pursuits, sickness, deformity, and a bad character are also sufficient causes for rejection. Should none of these obstacles present themselves, the candidate is admitted into the *Kioum*, and attired in the prescribed dress, enters upon the duties of a *Phoongree* If, as is generally the case, his age shall not have exceeded 15 years, he is appointed to the performance of the menial duties, and gradually initiated in the peculiar tenets of the sect, until he shall have arrived at the age of 20 years, the time appointed for confirmation

It is not uncommon for a *Phoongree* to devote only a certain period of his life to the duties of the convent, returning to the world so soon as that term of religious abstinence shall have expired. These *Phoongrees* are generally young men, who are desirous of assuming the monastic garb, either from a religious feeling, or for the purpose of performing

some expiatory service, and are enabled to do so through the assistance of some persons who deem it an act of piety to defray the expences consequent to their ordination

In towns and large villages the education of the children* (the male part of them), is chiefly entrusted to the *Phoongrees*, and it is a part of their daily and uninterrupted occupation No distinction is made between the children of the rich and the poor both are treated alike and receive a similar education, no remuneration whatever being made to these good monks for their trouble, save the daily provision that is voluntarily supplied by the native community for their subsistence. Children under nine pears of age are not admissible into the *Kioum*, being of too tender an age to undergo the discipline and duties imposed upon them out of school hours, such as fetching wood and water, cleaning the rice, and attending the priests in their daily rounds, for it is the duty of the boys to carry the baskets containing the contributions of food Such children as are parentless, or of poor parents, and even those who reside at some distance from the *Kioum*, are fed as well as lodged by the priests The other boys are allowed a certain time to go home to their meals, but they are obliged to sleep in the convent, for what they have read during the day is repeated in the evening or at day-break on the following morning

There is another source of education equally peculiar to the Mughs, such as are not engaged in any pursuit or employment requiring all their time, devote a portion of it to the education of children, entirely gratis, less labour being expected from the children than is imposed upon them in the *Kioums* Children under nine years of age and of both sexes are admissable to such schools, the rules, as before observed, being less strict than those enforced at the monasteries, it is therefore not uncommon to meet with children of a very tender age at such schools

I know nothing so gratifying to a stranger as a visit to the larger *Kioums* in the evening of a fine day To observe boys of all ages rushing from the scene of their daily labours to the tank or other place of enjoyment, with that cheerful demeanour which marks the school-boy in our own country when released from his task and joining his fellows on the play-ground At this time a group of monks may be seen standing on the elevated *Michaun* at the threshold of the *Kioum*, enjoying the evening air, or quietly watching the conduct of

* I am indebted to my friend Captain WILLIAMS for much information on this subject, as well as on other matters connected with this singular people. The great popularity he enjoys with the Mughs, has given him favourable opportunities for prosecuting his inquiries into their customs, &c

the little urchins just escaped from their controul. To the eye of the most careful observer, their countenances bespeak a tranquillity of mind unknown to such whose passions are yet unsubdued There is in the appearance of these priests an equal absence of puritanical zeal or overweening confidence, their features are as placid as the sky above them, and even with those whose religious duties are of the graver cast, a smile of benevolence may be seen to break through the shades of sorrow and self-degradation. Often have I, in passing, addressed these monks, and have invariably received a courteous reply On some occasions I have found a welcome in the *Kioum* when shelter was denied me elsewhere, and with that welcome the more substantial evidences of good-will in the shape of a repast prepared for myself and followers. I never left the *Kioum* in prosecution of my journey without feeling grateful to those good monks, who had so charitably received the *white stranger* into their mansion

The *Bhi Kuni* (nuns), are equally common with the priests They either reside in a convent of nuns, or live separately in some house constructed near a *Koo* (temple), superintending the offerings, and leading a life of religious abstinence The greater part of the *Bhi Kuni*, have retained their virginity from early youth, others again have retired from the scene of earthly cares at a more advanced age, in some instances, after marriage, but only when that marriage has not been productive of children. The dress of the *Bhi kuni* is similar to that of the *Phoongrees*, and their discipline in every other respect alike. Both are equally revered by the laity, and supplied with the little food necessary for their subsistence.

Respected by the people when living, it is not surprising that the *Nigh ban** of a *Phoongree* should be marked by circumstances expressive of the sanctity of his character, and the attachment of his flock. The nature of the preparations made to do honour to his remains will depend much upon the means of the population residing in the neighbourhood of the *Kioum* If these should be ample, the funeral obsequies will be performed on a scale of magnificence seldom surpassed in their most expensive shews, but if otherwise, the ceremonies will of necessity be got over in a hurried and economical style The following will however be found to be the general practice with regard to the obsequies of a deceased *Phoongree*, and such mode of performing them was adopted in the present instance.

When emancipated from the world, the body is opened and embalmed; after which it lies for many weeks exposed to public view. The body is then confined in a coffin richly embellished with gold and

* *Nirván*, death, properly *emancipation*.

silver leaf, and this is placed upon a lofty car that had been constructed for the purpose The inhabitants of the neighbouring villages flock to the spot, and ropes having been fixed to the fore and hinder parts of the car, a contention arises among the villagers for the remains of the *Phoongree* One party pulls against the other, and those that are successful claim the honor of finishing the ceremonies. This is done by a grand display of fireworks, the greater part of which are skilfully directed at the car, which is at length set on fire and the body is consumed*. Should the deceased *Phoongree* have maintained a character for peculiar sanctity, a part of his remains is not unfrequently preserved from the flames and retained as valuable relics The influence of superstition has attached much value to such remains, and in addition to the worth they may be supposed to possess from the religious character of the departed priest, they are held by the more ignorant to be a common ingredient in those charms that are in use with the wizard.

The Mughs hold the practice of burning the dead to be more honourable than that of committing the body to the earth or the sea, probably from its being attended with greater expense and publicity. Funerals are, however, conducted in either way, according to the means of the relations, or other circumstances favouring the adoption of one particular practice The spot on which a funeral pile had been raised is not unfrequently marked by a cenotaph, a garden, a clump of trees, or such other monument of affection as the condition of the parties will enable them to place over the ashes of a departed relative. In some cases, the funeral rites are followed with donations of food and clothing to the priests, and a further evidence of piety is evinced in the adoption of some young man who shall express his readiness to embrace the profession of a *Phoongree*

January 14 —I had slept at the thannah on the night of the 13th, and was up at an early hour on the following morning with the intention of moving on to *Oogah* The distance from *Khyouk Phyoo* to *Kyouprath* is at least sixteen miles, from that to *Ladong* is said to be as much as twenty, so that I had travelled 36 miles in the two days. *Oogah* was distant 12 miles from *Ladong*, and as the route lay over a level country I was not detained very long upon the road The villages in *Ladong* are remarkably large, and have a cheerful, comfortable appearance. The whole face of the district, with the exception of the narrow belts of *Girjun* trees and underwood before mentioned, is under cultivation; and but for the costume and features of the inhabitants as well as the peculiar construction of the houses, I could have fancied

* See a full account of the same ceremony by the late Rev. Dr CAREY, As. Res. xii. 389 —ED.

myself in Bengal The general appearance of the *Mugh*, induces the supposition that his condition is not only infinitely superior to that of the poorer classes in many parts of India, but that he is comparatively happy and contented with his lot. His clothing, though coarse and of native manufacture, is ample for the climate, and his vigorous frame of body bespeaks a sufficiency of nourishment As his wants are few and easily supplied, there is no call for that unremitting labour which secures to the poor of other countries their scanty sustenance. The earnings of one day of toil generally provide for the exigencies of two successive days of ease, and to such as are, from a more indolent habit, less willing to cultivate the soil or perform the duties of an hireling, the forest and the sea present an inexhaustible supply of food. It is to this abundance of the necessaries of life in some one shape or another that we may ascribe the existence of that apathetic indifference to the future, characteristic of the Mugh population, and until some *artificial wants* are produced by a taste for luxuries hitherto unknown, we shall look in vain for that display of activity and toil peculiar to a more civilized, but less happy and probably less virtuous, race of people It is not however too much to affirm, that such a change is already perceptible among those who are most in contact with Europeans and the natives of India

In the towns of *Khyouk Phyoo* and *Rambree*, we may observe this indication of the growing taste for articles of foreign manufacture, in the small investments of cutlery, glass-ware, muslins, and broad-cloth exposed for sale in the shops along with the produce of the country The people have already become smarter in their dresses, and were a little more attention paid to their pattern of piece goods, I have no doubt but the sale of these would be far greater than it is at present. Long habituated to a state of being little remote from that enjoyed by the brutes of the forest, the present generation are prepared to value those little luxuries denied to them during the reign of Burmah despotism, and will not be slow in securing the possession of them if placed within their reach It is amusing, though melancholy, to hear these poor people relate the state of things in former days, in as far as regards the importation of foreign produce, and the prohibitions that debarred them the privilege of wearing the muslin turban or angah, even were they sufficiently wealthy to purchase the materials for one As any exportation of the staple produce of the soil was seldom or ever permitted, few returns were made in the shape of Europe or Indian goods They did, on some occasions, find their way into the country by the *Godoohs* that returned from Calcutta and Chittagong, laden with such articles of Europe or Indian manufacture, as the owners were enabled to obtain in exchange for the gold leaf, deer horns, bees' wax,

and earth oil, the produce of Ava and Arracan The demands of the Burmah *Kaeng**, and the numerous exactions, with the expenses of a long and dangerous voyage, were, however, thrown with such severe but necessary weight upon the original prices of the several commodities imported, that none but the rulers of the land would venture to evince a disposition to become possessed of them

Property has now become comparatively secure, a stimulus has been given to industry by the freedom allowed to the exportation of produce, with an increase of production there will be an augmentation of capital, and the agriculturist may look forward to the attainment of those articles of comfort and luxury hitherto denied to him. Still this change for the better will, of necessity, be very gradual It is as it were a newly discovered land, and as such it will require the united efforts of capital and labour (joined with skill), to bring its resources into play As is well known, the staple produce of the soil is *rice* Great quantities of this grain are annually exported to Madras and Penang the returns being generally made in kind, and consisting chiefly of Madras cloths and Europe muslins, which are either sold in Arracan or retained for importation into Ava I am not aware that any other article of agricultural produce is exported from *Rambree* Both cotton and indigo are, however, grown upon the island, the former on the mountain side after it had been cleared of the jungle, tobacco is also produced in the ravines and clefts of the hills, subsequent to the accumulation of alluvial soil deposited therein by means of a dam so constructed, as to oppose its escape with the torrent But neither of these are produced in such abundance as to permit of a large exportation, the quantity grown being little more than sufficient for consumption in the province. A want of capital, and perhaps a want of confidence in the Government, prohibiting agricultural speculation, the production is generally confined to what may be deemed sufficient for domestic purposes, or be grown with the sure prospect of ultimate reward

The morning was bitterly cold, and I was glad to dismount from the elephant and walk. Snipe were very numerous on a piece of marshy ground, through which the road lay, and further on, I observed two deer of the same species as the *Ratwa deer* of Nipal, I could not give a better description of this animal than referring my readers to the account given of it by Mr Hodgson along with the drawing, both of which appear in Part 2, vol. xviii Asiatic Researches. I had before seen one that had been caught in a net, and brought unto me. The

* Collectors of customs The duty levied was usually as much as ten per cent, and not unfrequently paid in kind.

Mughs call the animal *Ghi*, and say, that they are very abundant upon the island, residing in the recesses of the forest The two deer above-mentioned were seen at the skirts of the jungle, and were evidently returning to their haunts after a night's ramble through the plains

There was nothing peculiar in the geological features of the country between *Ladong* and *Oogah* The soil was, as usual, composed of a rich clay, mixed with a small proportion of sand, and sandstone the prevailing rock The dip of the stratum, wherever a stratification could be observed, being still to the S S W. and S W parallel to the bearing of the hills

Leaving the stubble fields of *Ladong*, I came once more upon the beach, and could see the village of *Oogah* beyond me, very prettily situated on a bight of the sea It was surrounded with tamarind and mango trees, and was on the whole a neat and comfortable looking village The prospect from *Oogah* was remarkably fine, beyond it, on the land side, lay *Jeeka*, the highest mountain in the island, and immediately opposite to it, separated only by a small channel of the sea, was the island of *Cheduba*, with its blue hills and undulating plains A *Godoo* was at anchor between the islands, and from the reports of the crew who were on shore for water, it appeared that she had come last from *Chittagong*, and was bound to *Bassem*, laden with betel-nuts and sundries The *Soogree** of the village had come out to escort me to his house, a snug looking building surrounded with a strong bamboo fence In front of the house, and under the tamarind trees, a nice *michaun* had been constructed for the accommodation of travellers, and upon this I lay down and slept until a room with a mat, &c, should be got ready in the *Soogree's* house for my reception at night I should have been very well pleased to have slept out in the open air upon the *michaun*, but for the remonstrances of my host, who pointed out the danger of doing so in a place so much infested with tigers. It was perhaps as well that I did not sleep outside, for a tiger came into the village during the night, and so much alarmed one of the elephants that he broke loose The old *Soogree* appeared to be in very good circumstances, he had a large house, abundance of poultry and cattle, and in addition to these evidences of prosperity, he had two wives Polygamy is common enough in Arracan There appears to be no limitation, a man may keep as many wives as he can afford to maintain The consent of the first wife should, however, be obtained previous to the conclusion of a second contract It is seldom that a refusal is given, and equally seldom that attention is paid to it. Retaining the privileges of a mistress, and probably aware of her

* The head man of the circle, he collects the revenue.

inability to enforce a compliance with the restriction she wishes to impose, the elder wife usually signifies her readiness to receive into the family a second helpmate for her husband. This new alliance is seldom resorted to before the first wife shall have ceased to retain the charms of her youth, and have become incapable of performing the several domestic duties incumbent upon her

The system of betrothing children to each other at a very early age, so common with natives of India, does not obtain with the Arracanese. Instances will occur when their marriage has been the result of a preconcerted arrangement on the part of the parents so soon as the female shall have attained the age of maturity (15 years), and not preceded by mutual attachment of the parties united. The young people are not, however, unfrequently, permitted to form their own choice, and where no great disparity of age exists, the consent of the parents is generally obtained. As there is no seclusion of the females there can be no want of opportunity for the display of those little attentions, which in the eyes of the female sex distinguish a lover from a mere observer The lifting of a pitcher from the well or tank to his mistress's head, or the present of a bouquet of early flowers to adorn her hair, are but few of the many ways by which the passion of her lover is exemplified Should such attention be pleasing to the fair one, she will probably intimate as much by the gift of a neatly made bundle of *cheroots* manufactured by her own hand The attachment between the parties being known to their parents and their consent obtained, the astrologer (*Hoora dye)*, is consulted the day, month and year of their children's birth is made known to him, and if the result of his calculations are favourable to the union, every thing is arranged for its completion In the first place, a present of a fine silk dress , some gold and silver ornaments, with a little tea mixed up with spices, are sent to the young lady by her lover, who will perhaps follow in the evening of the same day preceded by the young unmarried men of the village these advancing before him as he approaches the house of his intended bride, extend to the right and left, and oppose his further progress until he has satisfied them with as many rupees as he can afford to lose. He now draws near to the threshold of his mistress's house. She, on her part, is attended by the young maidens of the village, and these oppose his entrance to the dwelling until he has paid a fine similar to that imposed upon him by his male companions. The lover now enters the house , and seated at his mistress's side, flowers and water are scattered over both by the hands of the oldest and most respectable person present.

This done, they both sit down to a meal prepared by the parents of the girl, receiving the food from each other's hands. The meal ended,

the hands of the bride and bridegroom are laid upon each other, (the hand of the bridegroom uppermost,) and washed by the same person who had sprinkled the water and flowers over the parties The father of the bridegroom then takes a ring from off his son's hand, and places it upon the third finger of the bride's left hand The marriage ceremony being now completed, a *nantoh* and entertainment is held at the bride's house The bridegroom retires with the bride, and remains seven days in her parent's house, preparatory to his taking her to his own home This will be found to be the general practice of the people on the occasion of their nuptials, but it is not uncommon for a man to take to himself a wife without going through any part whatever of the ceremony above described, nor is there any discredit attached to the parties so united The woman is viewed in the light of a wife, and treated, in every respect, in the same manner as if she had been united to the man in the manner I have detailed. A *prostitute* was a being unknown to the *Mughs* before the country had fallen into the hands of the British Among the blessings attending the change of rule and marking the progress of *civilization* in Arracan, is the introduction of a gradual increase of that unhappy class of people, and with it the miseries that are consequent to an unrestrained and promiscuous intercourse To the honour of the *Mugh* women I must declare, that instances of prostitution on their part are still of rare occurrence, the reputation for this vice is still more generally attached to their *more civilized* neighbours the *Bengalees*

So much liberty being allowed to the sexes in early youth, it may be supposed that an unlicensed intercourse will, in many instances, be found to exist between them previous to their union It would be unreasonable to affirm that a passion which is so often known to break through the bounds imposed by religion and morality upon a people who claim for themselves a superior degree of civilization, should not in this country be known to exist in an equally unbridled state, and produce the evils consequent to an unrestrained intercourse and the shame of an avowal Instances of abortion or bastardy are not, however, of frequent occurrence, the good sense of the parents, to whom the attachment in its several stages is generally known, preventing by a timely union of the parties, the evil which must originate from an intercourse unsanctioned by custom and authority

When it is considered how easily a divorce is obtained, and how seldom sought for, we may naturally conclude that marriage is conducive to the happiness of the people. Separation may be effected (privately) by a deed drawn out by husband and wife, and witnessed by two or more respectable neighbours, or both parties may appear before the

meeo-woon or magistrate, and a separation is instantaneously effected on their compliance with the rules laid down for observance in such cases If the wife objects to remain any longer with her husband, and he shall be found to have repeatedly ill treated her, she is at liberty to depart, receiving from him the whole of her property, as well as the children (both male and female), that may have been born to her. The children are, in maturer years, allowed to reside with either parent as choice directs. If, on the contrary, the wife shall be found to have behaved ill, she pays a certain sum of money (generally about 25 or 30 rupees), to her husband, who also retains possession of the male children, the wife receiving no part whatever of the property. In cases where no criminality is attached to either party, and both desire to be separated, a fair division of property is made, each receiving what he or she may have possessed before marriage, with an equal share of the produce of their united labours, the husband retaining the boys, and the wife the girls The case being investigated and decided upon, a *pawn* is broken into two pieces, one of which is given to each as the emblem of separation This done, the divorce has been effected, and they are both at liberty to contract any new alliance

[*To be continued*]

III.—*Description of the (so called) Mountain Trout of Kemaon By Dr* J. M'CLELLAND, *Assistant Surgeon, 30th Regt N I*

From among the treasures of natural history of Kemaon that have not hitherto been indicated, the following notice of a new species of fish, which affords a plentiful article of food to those who reside in the vicinity of small rocky streams, may not be uninteresting From the appearance of this species, it has commonly been considered by Europeans to whom it is familiar as a common mountain trout, a closer examination however, soon detects the mistake, and except that it belongs to the class of abdominal fishes and inhabits fresh-water streams, there is no natural connexion between this fish and the species to which it was supposed to belong The following are its distinguishing characters

Body compressed, mouth situated under the head, lunate, retractile, toothless. Dorsal fin consisting of eight rays Two ventral fins situated on the centre of the abdomen, caudal fin bifid.

The colour of the back is bluish-black, diminishing in intensity on the sides, which are each marked as usual with a lateral line, and the belly is pale bluish-white. The scales are so small as to be scarcely perceptible, and there is a slight golden lustre or iridescence about the head, the length is from three inches to nine

The habits of this fish are so peculiar as to deserve to be mentioned It derives its food from the green slime or moss that collects on the surface of rocks under water, and which is removed with considerable difficulty with the finger, but so well has nature provided the creature with the means of procuring its peculiar sustenance, that the object is fulfilled with ease and apparent enjoyment When feeding on the upper surface of a stone, the animal glides forward with sufficient force, and at the same time depresses the under lip, with which it scrapes the slime off the rock as it passes over it, leaving a streak behind like the scratch of a stick If the food is to be derived from the side of a rock, the creature accommodates itself accordingly, and if from the under surface of a projecting ledge, it throws itself on its back and darts forward with the most wonderful agility

From observing these peculiarities of character it became necessary to examine the anatomical structure of the mouth and digestive organs of the animal, and the following is the result

The under jaw or rather the under lip (for it cannot be said to have any jaws, and in this respect it resembles the sturgeon and loricaria), is composed of three small bones, the two outer are articulated at their bases to the inferior angles of the ossa malarum or cheek bones, (*a* fig 3 Pl I)and the centre one is in like manner attached to the sternum (*b*), these bones (1, 2, 3,) have hinge joints by which the lip may be depressed at its free extremity, and they are attached laterally to each other by strong ligaments

On the inner side of the bones of the lip is situated a strong muscular mass (*a* fig 4,) whose fibres originate on the inner side of the sternum, and are inserted into the upper extremities of the bones and ligaments of the lip, while that part of the organ which is used for collecting food in the manner above described, is at once protected and adapted to the performance of its singular function by a thick cartilaginous covering Whether we contemplate the peculiar figure of the ossa malarum, the sternum, or of the muscles, nothing can be more simple or complete than the means resorted to by Providence in adapting the lip of this creature to the peculiar office it is destined to perform

From the unyielding nature of the abutments to which the lip is attached in order to enable it to resist the pressure it is exposed to, as well as from the peculiar nature of the joint, it is incapable of any other action than that of being depressed, but owing to its great strength and necessary thickness, this motion alone would not be enough to open the mouth sufficiently for the admission of food, and this brings us to another contrivance still more curious

There is a small bone (*c* fig 3) loosely attached to what may be named the nasal process of the frontal bone, by a hinge joint which

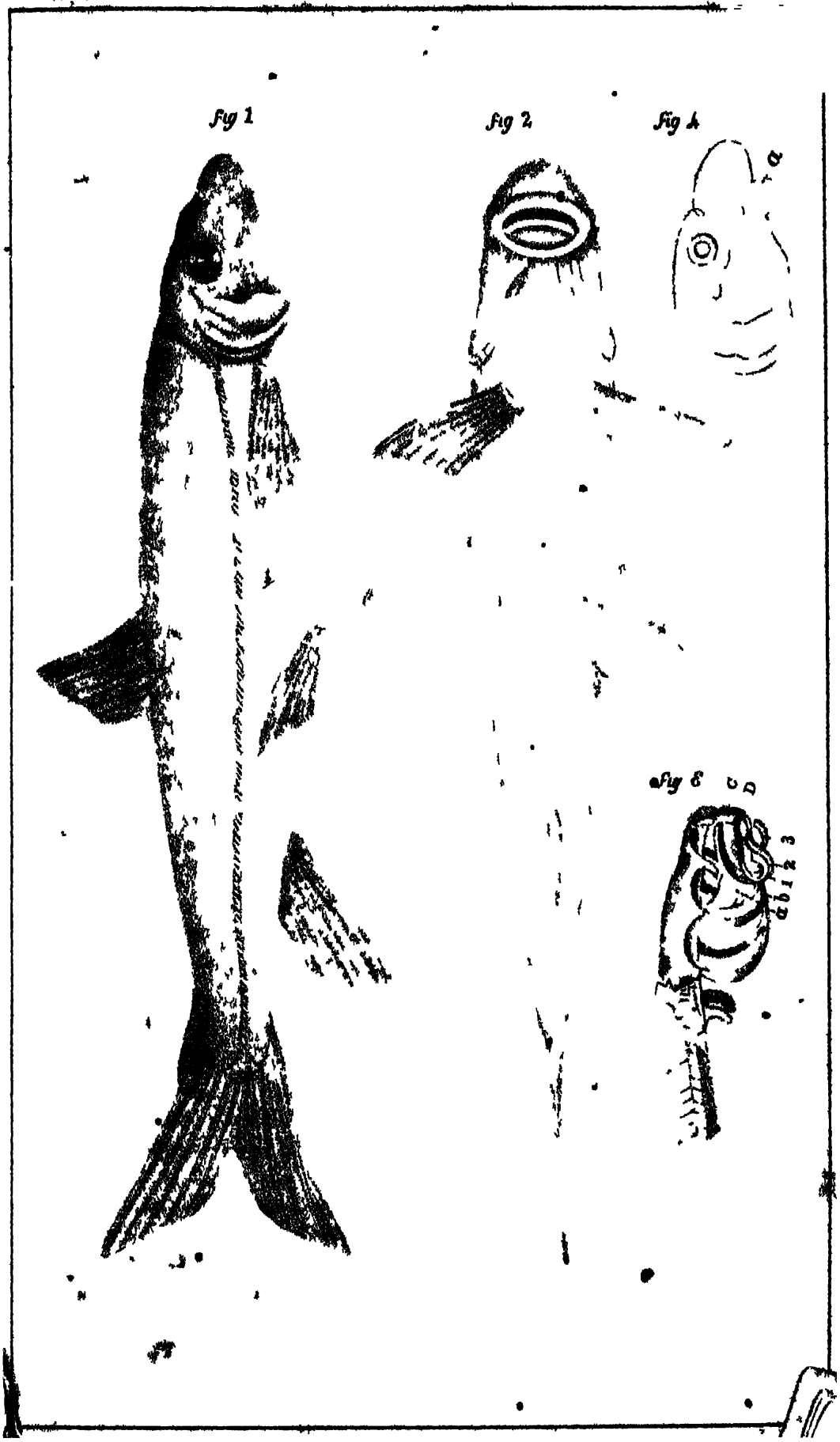
Fig 1
Fig 2
Fig 4
Fig 3

enables it to swing freely backwards and forwards, and to the lower end of this there is fixed a cartilaginous rim which forms the anterior boundary of the mouth (*d*), and by the muscular structure of the snout and palate the anterior boundary of the mouth is drawn forward or retracted at pleasure It is probable from the consideration of these parts that they do not serve merely for opening the mouth, but also assist in collecting or sucking food into it, by means of the vacuum consequent on the enlargement of its cavity, the opercula being compressed on the apertura branchialis

From the soft pulpy nature of the food mastication would be useless, accordingly there are no teeth the tongue is short and cartilaginous The last remarkable circumstance in the anatomy of this fish which I shall mention is, the great length of the intestinal canal, it being eight times that of the body, the stomach alone extending the whole length of the abdominal cavity These circumstances indicate either the innutritious nature of the food, or the strong digestive powers that are requisite the latter would appear to be the case from the muscular strength of the stomach, which is displayed to the naked eye by the numerous white bands of longitudinal fibres which may be observed passing thus in a zigzag form from one extremity to the other

The whole length of the canal was loaded in the specimen examined with the peculiar slimy food already mentioned

During the warm season these fish are seen sporting and feeding at all hours, but in winter they spend their time chiefly under rocks and stones, where they probably deposit their spawn, only coming out to feed as the sun ascends in the meridian, and again retiring in the afternoon, or on being frightened, they rush into their hiding places, from which they can easily be taken with the hand, and in this way the native fisherman in a few minutes secures as many of them as he wishes Conceiving them to be trout every attempt has been made to catch them in the usual way with fly and bait, and though every device has been resorted to, instances of success are so rare that they may be almost referred to chance A less refined but more successful method of fishing (as I have been assured by an intelligent friend who has seen it) is practised in the vicinity of Lohooghat by the blacksmiths during periods of relaxation from their more legitimate calling · these persons, aware of the disposition of the fish to spend certain seasons under stones, pursue the beds of the rivers, striking such loose stones with their sledge-hammers as they may suspect to conceal fish, which they thus kill by concussion.

IV —*Discovery of the Genuine Tea Plant in Upper Assam*

[The following official correspondence of the Tea Committee has been obligingly handed to us for publication We hasten to present it to our readers in its original shape rather than attempt to make an abstract of its contents, because the curiosity of the public is much raised, and they will naturally wish to follow the whole train of the discovery, and give the credit thereof where it is due —ED]

Letter from the Committee of Tea Culture to W H MACNAGHTEN, *Esq Secretary to the Government of India, in the Revenue Department*

SIR,

We request that you will have the goodness to submit to the Right Honorable the Governor General of India in Council the enclosed copies of the reports, which we have received from Captain JENKINS, dated the 7th and 19th May, and from Lieut CHARLTON, dated the 17th May, also a subsequent communication from Lieut CHARLTON, dated the 5th of last month, together with the samples of the fruit and leaves of the tea plant of Upper Assam, which accompanied it, and some specimens of the leaves previously received

2 It is with feelings of the highest possible satisfaction that we are enabled to announce to his Lordship in Council, that the tea shrub is beyond all doubt indigenous in Upper Assam, being found there through an extent of country of one month's march within the Honorable Company's territories, from Sadiya and Beesa, to the Chinese frontier province of Yunnan, where the shrub is cultivated for the sake of its leaf We have no hesitation in declaring this discovery, which is due to the indefatigable researches of Capt JENKINS and Lieut CHARLTON, to be by far the most important and valuable that has ever been made in matters connected with the agricultural or commercial resources of this empire We are perfectly confident that the tea plant which has been brought to light, will be found capable, under proper management, of being cultivated with complete success for commercial purposes, and that consequently the object of our labors may be before long fully realised

3 It is proper to observe, that we were not altogether unprepared for this highly interesting event We were acquainted with the fact that so far back as 1826, the late ingenious Mr DAVID SCOTT, sent down from Munipore specimens of the leaves of a shrub, which he insisted upon was a real tea, and it will be seen from the enclosed reports from the agent to the Governor General on the north-eastern frontier and his assistant, that a similar assertion was strongly urged in regard to the existence of the tea in Upper Assam Still we felt ourselves bound to suspend our decision on the subject until we should be in possession of the fruit of the reputed shrub, the only test which ought to guide us We knew that several species of Camellia were natives of the mountains of Hindustan, and that two of these were

indigenous in our north-eastern frontier provinces, and taking into consideration the close affinity between the two genera, we were disposed to expect, that the alleged tea would prove nothing else but some sort of Camellia We have at length obtained the fruit of the Sadiya plant from Lieut CHARLTON, and we are now enabled to state with certainty, that not only is it a genuine tea, but that no doubt can be entertained of its being the identical tea of China, which is the exclusive source of all the varieties and shades of the tea of commerce With the view of exhibiting the peculiarities in the structure of the fruit, on which depends entirely the difference between the Tea and Camellia, we have desired our officiating secretary to annex to this letter a sketch of the fruit of both, with explanatory remarks

4 We beg leave most respectfully to submit the preceding facts to the particular consideration of Government, and earnestly to recommend, that in the first instance, and as early as may be practicable, one or more scientific gentlemen properly qualified for the investigation may be deputed into Upper Assam for the purpose of collecting on the spot the greatest variety procurable of botanical, geological and other details, which, as preliminary information, are absolutely necessary before ulterior measures can be successfully taken with regard to the cultivation of the tea shrub of that country We also beg to express our opinion, that it would be highly desirable to adopt forthwith the plan suggested in Lieut CHARLTON's last letter, of the 5th of November, of establishing a communication with Yunnam by means of a land-road, at least as far as Hookam, since, independent of all other advantages, it would materially facilitate the operations of the scientific deputation, which we have recommended should be sent to Upper Assam with as little delay as possible

5 We anticipate that the execution of the recommendations we have made, need not be attended with any considerable expense, but it appears to us, with reference to the very great importance of the occasion, that the only consideration which should have weight is, that the money which may be required should be faithfully and economically applied to the purposes for which it may be granted.

We have, &c.

Calcutta, Dec 24, 1834. Signed by the Committee of Tea Culture.

From Captain F JENKINS, *Agent to the Governor General on the N E. Frontier, to* G J GORDON, *Esq Secretary of the Committee of Tea Culture, dated Gowahatty, 7th May,* 1834.

I regret the delay that has occurred in acknowledging your circular, dated the 3rd March, to my address it has been occasioned by unavoidable circumstances which I have further to regret will prevent

my replying to your communication to the length I could wish or the subject deserves

2 My little acquaintance with Assam will not admit of my replying to all your questions, but from general information and my own observation, I am so fully impressed with the belief of the fitness of the mountainous region which divides Cachár from Assam for the growth of tea, that I beg to attempt to call the attention of the Committee to that region in the most forcible manner I can, with a view to its examination by a competent individual

3 The mountainous tract I allude to, commences from the east of the country of the Jynteah Raja, and continues always increasing in elevation until it reaches to the eastern end of the valley of Assam, and is so far under the controul of British authority, immediately between Cachar and Assam completely so, and farther on more or less directly or indirectly. The part entirely under us ranges from 6 to 8000 feet greatest heights, and farther east the mountains attain a height of 10,000 feet, and the valleys and beds of streams are from 2500 to 4000 feet above the sea From the end of the valley of Assam this ceases to be merely a west and east range, its direct continuation passes into China into the tea countries of Sechuen and Yunnan the northern bend in the latitude of Sadiya meets a branch of the snowy mountains, and the southern divides off into the two mountainous ranges, which border the Irrawady on either side, from its sources to the sea.

4 Every part of this mountainous country that I have visited, presents nearly a uniform geological structure, being almost entirely composed of clay-slate, and every where nearly of the same appearance, very much broken and disintegrated, so much so as to be seldom visible in mass, and being covered with a deep coat of soil and luxuriant vegetation even on the greatest heights

5 Camellias are found in every part of this hill country, and within our jurisdiction in the Singpho district of Beesa, a coarse variety of the tea plant is, as I am informed, undoubtedly indigenous A plant was given to me at Sadiya, which I have reason to suppose, was a genuine tea tree, and I intended to have brought it to Calcutta for examination, but I received it in a sickly state, and from the prevalence of great heat I was unable to succeed in taking it to the presidency I shall endeavour to procure another plant or two for the satisfaction of the Committee. However, having no doubt myself of the fact of the tea shrub being found wild in the eastern parts of Assam, I would beg to recommend the expediency of some well-qualified person being at once sent up for the identification of the plant beyond any objection, for the examination of the soil in which it grows as reported, and an inspection of the tract of mountains between Cachar and Assam

6. If this recommendation were acted upon, the person deputed should be in Cachar by the 1st of November, and proceed immediately to ascend the mountains in communication with the officer in civil charge, Captain FISHER, who would previously have made arrangements for his being provided with porters, &c He should pursue nearly the tract followed by me on the same journey, and on arrival at Bishonath should proceed by water to Sadiya, and thence go up to Beesa at the foot of the mountains dividing Assam from Ava

7 As the individual thus deputed would of course be a competent botanist, and perhaps geologist, I contemplate much indirect acquisition to science from the trip thus sketched out, it being almost entirely untrodden ground to any scientific observer, and of course it is to be expected that much benefit, in an economical point of view, might result to the state from the researches and suggestions of one who could bring to knowledge the unlimited productions of the vegetable and mineral kingdoms in the regions in question

8 In case you should not have forwarded a copy of your circular to Captain FISHER, I shall do so, and request him to make a report to you upon the subject of it with reference to Cachar

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Extract of a private letter from Captain F JENKINS *to* G J. GORDON, *Esq dated the* 19*th May*, 1834, *with enclosures*

Since I wrote you officially, I have had the enclosed note from Lieut. CHARLTON of the Assam Light Infantry, regarding tea, and I have been presented with the enclosed luminous map* of the tea districts in Upper Assam by a Phokun who accompanied Lieut BURNETTAN an expedition to the top of the Patkoye range of hills, dividing the waters of the Burhamputra from those of the Kuenduen On this range of hills the trees grow in great abundance, and are described to reach the size of small forest trees or very large shrubs You will see how he says the leaves are treated, which though it seems rather an odd mode of manufacture, he and others persist in saying is the way in which the Singphos manage the tea I never had an opportunity of trying it, but those who had said it was palatable enough, and the leaves thus prepared keep for ever

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Copy of a letter from Lieut CHARLTON *to Captain* JENKINS, *dated on the Burhamputra, the* 17*th May*, 1834, *enclosed in the preceding.*

With regard to the circular from the Tea Committee which you showed me at Gowahatty, I have much pleasure in communicating the little I know of the tea plant of Assam. I was informed about three years ago of its being found growing wild in the vicinity of Beesa at

* This map being of the most crude description is omitted here. It did not accompany the Committee's Report to Government.

the foot of a low range of hills and in the subjacent plains, from whence I obtained three or four young trees, which I gave to Dr JOHN TYTLER in Calcutta, with a view of their being planted in the Government Botanical Garden I have since understood they decayed soon after

The soil where they grow was described to be alluvial like most parts of Assam, and the trees rising to the height of twelve or fourteen feet more, either at the foot or a small distance up the hills, but never on the summit, from which I infer a sheltered situation to be most favorable The aspect was generally southerly or south-east I am sorry I cannot give you a minute description of the plant, not having it now before me, but so much I recollect, the leaves were about two inches in length and one in breadth, alternate, elliptic-oblong and serrate The flower white, very like that of the wild white rose, but much smaller The seed I have not seen, it was described to be contained in a red, round, three-lobed capsule, the lobes detached or bursting along the upper sides, with a single seed in each From what I have seen of the tea plant in different parts of the world, and lately in New Holland, propagated by seeds brought direct from China, I have little doubt but that *that* found near Beesa is a species of tea, and though it may be spurious or even a Camellia, as Dr WALLICH suggests, its growing there indigenous and in great abundance affords good grounds for supposing that the introduction of the Chinese plant into Upper Assam would be attended with success I have not had an opportunity of making any experiment on the leaves, they are described as small in their green state, but acquire the fragrance and flavour of Chinese tea when dried The Singphos and Kamtees are in the habit of drinking an infusion of the leaves which I have lately understood they prepare by cutting them into small pieces, taking out the stalks and fibres, boiling and then squeezing them into a ball which they dry in the sun and retain for use I have written to Sadiya for a specimen of the tea prepared in this manner, and for plants and seeds, I will send you some if I am able to procure them, and write to you on this subject more fully by and bye

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Copy of a private letter from Lieut CHARLTON *to Captain* JENKINS, *dated at Sadiya, the 8th November,* 1834

I have now the pleasure of sending you some seeds and leaves of the tea tree of Assam, and am sorry that the unsettled state I have been in for the last three months has prevented my sending them so soon as I intended The leaves you could have had before, but I was anxious to make them into something like tea, the best test that the tree is not a Camellia, as Dr. WALLICH imagines It appears coarse, owing to the leaves being large and much too old, which could not at

the time be obviated By the end of the cold weather, when the young leaves are on the trees, I hope to send you as good black tea as we generally receive from China I will make experiments in the interim in the art of preparing green

The tree I now find is indigenous to this place as well as Beesa, and grows wild every here and there, all the way from this, about a month's journey, to the Chinese province Yunnan, where I am told it is extensively cultivated One or two people from that province have assured me, that the tea tree grown there exactly resembles the species that we have here, so I think there can be no longer any doubt of its being *bonâ-fide* tea What a pity there is no means of communication between Sadiya and Yunnan A good land-road made only as far as Hookam, and there are no natural obstacles of any consequence to prevent it, would afford an outlet for British merchandize into the very heart of China

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Copy of a note from Captain F JENKINS *to Dr* WALLICH, *on the back of the above, dated (at Gowahatty) 22nd November,* 1834

I have only time to send this and to say, I have sent a jar of tea-leaves and a box of tea seeds to go by to-day's dâk, I hope you will see from the seeds that there is no doubt ours is genuine tea

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Memorandum explanatory of the sketches which accompany the report of the Committee of Tea Culture.

There is no danger of mistaking any plant for the tea except the Camellia Both are very closely allied to each other in general appearance, in the form of their leaves and the structure of the flowers It is by the character of the fruit alone that they can be satisfactorily distinguished for practical purposes, in that respect the two genera differ very widely

In both the fruit consists of a roundish, more or less triangular, dry capsule, of three distinct cells, each cell containing one solitary seed or nut. At the period of maturity the dehiscence or bursting takes place vertically, by means of three fissures, extending from the top of the capsule towards its base So far their capsules are precisely alike, the following are the points of difference

In the tea, the capsule is more or less deeply divided into three globular lobes, sometimes appearing as if it consisted of three round capsules united into one The general outline is therefore always decidedly triangular, with extremely obtuse corners. The bursting proceeds along the middle of the lobes or angles, when a large seed is discovered through each aperture enclosed on all sides within its proper cell, which cell is in fact formed by the corresponding lobe of the fruit

By this process six valves are, properly speaking, formed, (and not three, as they are generally counted,) each lobe splitting into two hemispherical valves. The partitions alternate with the lobes, and are formed by the sides of two adjoining cells being, as it were, glued together, and extending to the axis of the capsule, from which they at length completely detach themselves, when it disappears altogether. The seeds or nuts are almost globular

In Camellia the capsule is very obscurely triangular without any tendency to become deeply three-lobed It bursts along the middle of each side (consequently alternately with the corners) into three very distinct valves, each of which belongs to two adjoining cells, because the three partitions originate lengthwise from the middle of the respective valves, and are therefore opposite or contrary to these, converging from thence to the triangular axis, from which they gradually separate, leaving it finally unconnected and free The seeds are of an oval oblong shape, smaller than those of the tea

The preceding remarks are made with reference chiefly to the Assam Tea and the Nipal Camellia, and purposely without technical precision, the object being simply to convey a general idea of the structure of the two sorts of fruit. But they admit of being applied with safety to all other instances of comparison between the genera in question

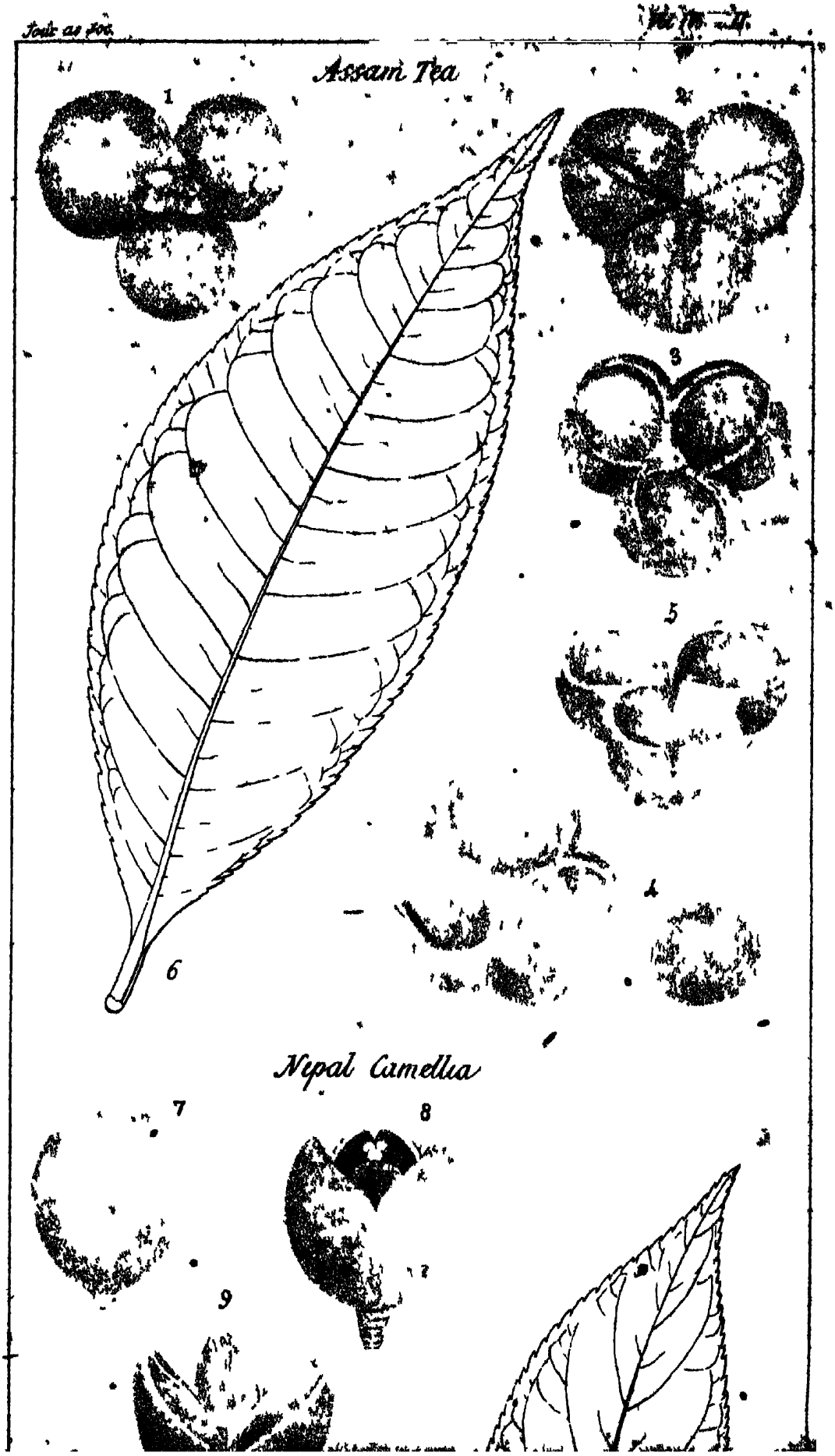
References to the Figures in Plate III

A The Assam tea *Figs* 1, 2, 3, ripe capsules scarcely enlarged, at 1, seen from below, deeply three-lobed; 2, the common form, commencing to burst, 3, the same completely burst open, and discovering the seeds, 4, the same, the seeds being removed, and one of these represented separately, of the natural size, 5, the lower half of a ripe capsule divided by an horizontal section and the seeds removed, exhibiting the places of dehiscence along the angles or lobes, and the partitions alternating with these and separating from the axis, a little enlarged, 6, outline of a full-grown leaf, of the natural dimensions

B The Nipal Camellia (*C kissi*) *Fig* 7, ripe and entire capsule slightly enlarged, 8 and 9, the same after bursting, the free axis being seen in the last figure, 10, a horizontal section as in the tea, much enlarged, representing the places of bursting, which alternate with the angles of the fruit, the partitions which are opposite to the angles of the fruit, and the valves, separating from the free axis, 11, a detached seed, natural size, 12, outline of a full grown leaf.

(Signed), N WALLICH, M D
Off. Sec. to the Com. of Tea Cult

H. C Bot Garden, Dec. 24, 1834.


Assam Tea
1
2
3
5
4
6
Nepal Camellia
7
8
9

[In the foregoing correspondence, allusion is made to a prior knowledge of the tea-plant of Assam The following extract from Captain WILCOX's Memoir of a Survey of Assam, published in the Asiatic Researches XVII p. 448, proves that officer to have been aware of its existence in the hills east of Sadiya —he writes from Manché, a Khamti village, latitude 27° 29′ 16″, longitude 97° 29′ — "according to promise, a specimen of the tea tree was brought to me from one of the neighbouring low hills, it was a full grown one, that is about five feet high, the leaves were coarse and large, and not numerous" Mr SCOTT and Captain DAVIDSON had also frequently seen it, and the latter officer says, that black tea is now brought to Goalpara from the Bhotan hills In 1828, Capts. GRANT and PEMBERTON sent specimens of what the natives asserted to be the tea plant to Mr Secretary SWINTON, from Mánipur, but for want of the fruit, its genuine nature was not identified These travellers made tea from its leaves, and found it approach very nearly in flavour to ordinary black tea —ED]

V —*Abstract of Meteorological Observations at Nasírabád By Lieut.-Col* THOMAS OLIVER

TABLE I —*Barometer reduced to 32° Temperature of the External Air, and resulting elevation above Calcutta*

Year and Month	Barom at 4 P M	Temp of Air	Elevation	Year and Month	Barom at 4 P M	Temp of air	Elevation
		°	Feet			°	Feet.
Dec 1832,	28 432	55 7	1461	Dec 1833,	28 391	65 4	1518
Jan 1833,	504	71 4	1440	Jan 1834,	402	70 0	1511
Feb	392	74 5	1437	Feb	392	76 5	1501
March,	334	84 8	1431	March,	281	86 5	1538
April,	234	96 9	1460	April,	212	93 8	1556
May,	059	102 4	1545	May,	101	103 8	1512
June,	031	102 2	1518	June,	27 980	101 0	1572
July,	27 965	97 1	1543	July,	977	88 1	1576
Aug	28 021	94 9	1543	Aug	28 001	88 2	1534
Sept	090	98 5	1507	Sept			
Oct	296	93 7	1484	Oct			
Nov	425	80 6	1497	Nov			
	28 232	88 5	1489				

It is remarkable that the elevations for the nine months, since December, 1833, are all with one exception so much in excess to those for the same months of the former year I am at a loss to account for this, the average height of my Barometer for the nine months in question being only 026 lower than the average for the same months of the preceding year

TABLE II —*Mean Temperature of each Month, with the Differences from the Mean of the Year*

Months	Temp Day	Diff from Mean.	Temp. Night	Diff from Mean.	Temp Sun-set	Diff from Mean
	°	°	°	°	°	°
January,	61 5	— 17 9	57 9	— 17 4	66 0	— 15 8
February,	67 8	— 11 6	60 5	— 14 8	67 7	— 14·1
March,	75 4	— 4 0	71 9	— 3 4	80 7	— 1 1
April,	85 2	+ 5 8	80 9	+ 5 6	88 5	+ 6 7
May,	94 6	+ 15 2	89 9	+ 14 6	96 9	+ 15 1
June,	93 6	+ 14 2	88 8	+ 13 5	94 6	+ 12 8
July,	88 3	+ 8 9	84 7	+ 9 4	88 0	+ 6 2
August,	86 1	+ 6 7	82 1	+ 6 8	86 4	+ 4 6
September,	86 6	+ 7 2	83 1	+ 7 8	87 7	+ 5 9
October,	82 0	+ 2 6	78 0	+ 2 7	85 5	+ 3 7
November,	72 7	— 6 7	69 6	— 5 7	77 1	— 4 7
December,	58 7	— 20 7	55 6	— 19 7	63 0	— 18 8
Means,	79 4		75 3		81 8	

TABLE III —*Temperature of the Air, and Depression (D) of Wet Thermometer*

Year and Month	Sun-rise		2½ P M		4 P M		Sun-set	
	Temp	D	Temp	D	Temp	D	Temp	D.
	°	°	°	°	°	°	°	°
December, 1832,	48 1	7 6	71 3	18 6	65 7	14 3	64 5	15 4
January, 1833,	50 4	9 7	73 3	20 0	71 4	19 1	66 2	16 7
February,	52 3	10 4	76 0	20 0	74 5	19 5	65 0	15 5
March,	62 7	13 4	86 7	27 1	84 8	26 3	80 3	23 6
April,	75 3	20 0	98 8	34 2	96 9	32 9	89 8	27 9
May,	82 7	15 6	105 6	34 3	102 4	32 6	96 1	28 2
June,	81 9	12 1	104 8	30 0	102 2	28 6	94 5	23 7
July,	82 3	7 5	99 8	23 1	97 1	19 2	91 5	15 7
August,	78 5	6 4	95 3	19 6	93 9	18 8	89 0	15 3
September,	80 0	11 1	100 3	25 9	98 5	25 2	92 6	22 3
October,	73 6	15 4	96 5	30 4	93 7	28 8	88 4	25·9
November,	62 1	8 2	83 5	20 8	80 6	19 3	77 1	17 4
December,	48 5	4 9	67 4	13 6	65 4	13 0	61 5	11 1
January, 1834,	49 0	9 4	73 2	20 8	70 0	19 0	65 7	17 4
February,	54 3	9 0	78 7	23 4	76 5	22 5	70 4	17·8
March,	63 4	13 8	88 4	28 1	86 5	27 2	81 1	23 6
April,	71 0	16 2	96 8	31 8	93 8	30 3	87 3	26 6
May,	83 5	18 4	105 8	36 6	103 8	35 4	97 6	31 1
June,	84 0	12 3	104 1	27 8	101 0	25 5	94 7	21 9
July,	80 8	4 4	90 8	12 8	88 1	10·6	84 5	7 3
August,	76 9	3 7	89·9	13 1	88 2	12 4	83 8	8 6
September,	75 9	2 5	89 7	12 5			82 9	7 6
October	67 4	5 7	89 4	21 9			82 5	17 4

TABLE IV —*Dew Point (S), Comparative Tension (T), and Grains of Aqueous Vapour in a cubic foot of Air (G)*

Year and Month	S	T	G	Year and Month	S.	T	G
	°				°		
Dec 1832,	32 2	371	2 42	Dec 1833,	40 2	525	3 15
Jan 1833,	28 4	294	2 11	Jan 1834,	27 3	289	2 04
Feb	32 0	·265	2 36	Feb.	29 4	261	2 15
March,	28 0	·189	2 03	March,	30 6	198	2 20
April,	30 0	139	2 11	April,	34 7	180	2 52
May,	30 0	110	2 08	May,	41 3	·163	3 13
June,	59 0	326	5 66	June,	64 3	382	6 69
July,	69 5	500	7 93	July,	74 3	694	9 37
Aug	67 7	531	7 50	Aug	71 9	689	8 70
Sept	60 5	373	5 96	Sept	72 7	722	8 94
Oct	40 5	212	3 03	Oct	55 4	459	5 17
Nov	46 4	401	3 87				
Means,	43 7	309	3 92	Means,	45 2	415	4 91

The means for the last year are probably but little affected by the want of observations in November, since the hygrometric state of the air for that month appears to differ not very much from the mean of the year

[The formula whence the dew-points in the above table are taken will be found in the first Volume of the JOURNAL, p 508, and in the GLEANINGS IN SCIENCE, i. 193 —ED]

Mean Results of four Years' Observations.

Months	Barometer at 32°		Temperature of Air		Mean Temperature		S	T.	G
	4 P M	var	4 P M	var	Day	Night			
	inches		°		°	°	°		
January,	28 475	+ 232	70 6	—17 0	60 9	57 5	31 6	.550	2 36
February,	387	+ 151	72 2	—11 4	66 4	59 0	34 9	368	2 66
March,	316	+ 080	84 0	— 4 4	73 5	70.5	34 9	265	2 66
April,	224	— 010	95 5	+ 5 6	83 6	81 5	37 4	194	2 80
May,	109	— 127	101 8	+14 7	92 6	88 2	40 1	175	3 06
June,	27 997	— 239	100 7	+14 6	92 5	87 7	63 3	388	6 52
July,	974	— 262	92 8	+ 9 6	87 5	83 8	71 7	604	8 60
August,	28 024	— 212	88 8	+ 5 7	83 6	81 1	71 5	679	8 60
September,	137	— 009	90 9	+ 6 1	84 0	80 9	66 4	.578	7 39
October,	305	+ 069	90 2	+ 2 3	80 7	76 8	46 7	334	4 00
November,	431	+ 195	79 3	— 7 7	70 2	66 7	43 2	392	3 47
December,	451	+ 215	67 3	—18 3	59 6	56 7	38 2	479	3 05
Means,	28 236	478	86 2	13 0	77 9	74 2	48 3	417	4 60

The mean temperature (day and night) from these four year's observations is 76°, but as Nasírabád is elevated above the level of the sea nearly 1500 feet, the air is or ought to be cooler on that account by about 5° 5, so that the temperature at the sea level would be 81 5, which is that assigned to the equator by HUMBOLDT

If we calculate the mean temperature for the latitude (26° 18′) by the formulæ which have been found in most cases to agree well with observation, we shall have,

By MAYER'S,	T (= 84°—52° sin² L)	= 73° 8
BREWSTER'S,	T (= 81° 5 cos L)	= 73 1
DAUBUISSON'S,	T (= 27d cos ² L in centesimal degrees*) .	= 71 0
ATKINSON'S,	T (= 97° 08 cos ⅔ L—10° 53)	= 71 9
	Mean	= 72 5

which is 9° less than the observations give when reduced to the sea level But it must be observed with regard to the locality of Nasírabád that it stands on an arid rock on which scarcely any vegetation exists unless during the rainy season this will no doubt account for a part of the difference Mr ATKINSON in his elaborate paper on Astronomical and other Refractions, (vide Memoirs of the Royal Astronomical Society, 2nd volume,) considers that 4° may be deducted from the observed temperatures of "large extended plains" allowing this, we have still 5° unaccounted for However, on calculating by the same formulæ, the mean temperatures of several places in this country where observations have been made and recorded in this Journal, I find similar differences, part of which may very probably be owing to errors in the instruments used, as it is well known how great a difference exists in the thermometers manufactured for exportation to this country, no two of which are hardly ever found to agree in their indications, some differing several degrees from others In the subjoined table, the latitudes and elevations of some of the places are given by rough estimation, not having at hand the means of ascertaining them accurately, but any probable errors in these estimations cannot affect the results materially. The difference of temperature due to elevation has been calculated by Mr ATKINSON'S Formula, viz

$$\text{Required diff in degrees} = \frac{h}{251 + \frac{h}{200}}, \; h \text{ being the elevation in feet.}$$

* Or, in Fahrenheit's Scale T=80° 6—48° 6 sin ² L.

Comparison of Observed Mean Temperatures with those deduced from the Formulæ of MAYER, BREWSTER, DAUBUISSON, *and* ATKINSON

Places	Latitude ′	Height in feet.	Observed Mean Temperature	Difference due to Elevation	Obd Mn Temp reduced to the sea level	Mean Temp by the Formulæ	Difference between the calculated & observed Mean Temperature
	°		°	°	°	°	°
Gazípúr, .	25 30	400	77 4	1 6	79 0	73 1	—5 9
Fattigurh,	27 20	600	75 6	2 4	78 0	71 6	—6 4
Seringapatam,	12 30	2412	77 1	9 2	86 3	80 6	—5 7
Nasírabád,	26 18	1487	76 0	5 5	81 5	72 5	—9 0
Delhí,	28 27	800	73 4	3 1	76 5	70 7	—5 8
Calcutta,	22 50	100	78 1	0 4	78 5	75 0	—3 5
Landour,	30 20	7000	56 7	24 5	81 2	69 1	—12 1

VI.—*Longitude of Nasírabád by Lunar Transits and by Observations of Moon Culminating Stars —By Lieut -Col* THOMAS OLIVER

By Lunar Transits

Months	Longitude			Sums of Seconds	Means		
	H	M	S		H	M	S
February 16th, 1831,	4	58	44	44	4	58	44
Ditto 22nd,		59	10	114			57
March 21st,		58	57	171			57
Ditto 22nd, . .		59	12	243			61
September 14th,		58	52	295			59
Ditto 15th, .		58	47	342			57
November 12th,		59	21	423			60
Ditto 13th,		59	05	488			61
February 8th, 1832,		58	41	529			59
Ditto 10th, .		59	07	596			60
March 9th, .		59	12	668			61
Ditto 10th, .. .		59	00	728			61
Ditto 12th, ..	.	59	00	788			61
April 8th,		59	07	855			61
May 7th, .		59	29	944			63
Ditto 9th, . .		58	50	994			62
June 6th, . ..		58	59	1053			62
Ditto 7th, . ..	.	58	49	1102	.		61
October 1st,		58	50	1152			61
November 1st,		59	09	1221	..		61
Ditto 29th, . .		58	52	1273			61
March 1st, 1833,		59	09	1342		..	61
Ditto 28th, ...		59	05	1407	.	.	61
Ditto 30th, .		59	05	1472	.	..	61
Ditto 31st, . .		59	04	1536	.	.	61
April 28th,		58	57	1593		.	61
Ditto 29th, .		59	16	1669			62
Ditto 30th,	.	59	18	1747			62
Nvember 17th, . .	..	59	00	1807	.		62
Ditto 19th, .	.	58	42	1849	.		62
Longitude by Lunar Transits,		..		..	= 4	59	02

By Moon Culminators.

Date	Stars	Intervals in Sidereal Time		Longitude			Sums of seconds multiplied by the No of stars observed	Means		
1834		M	S	H	M	S		H	M	S
Jan 16th,	μ Piscium,	—43	48 47	4	58	56	56	4	58	56
Jan 18th, .	ξ Ceti,	+ 4	16 09	..	.	52	160	.		53
	. .	—27	30 16							
Jan 19th,	μ Ceti,	+20	33 68							
	λ	+ 5	42 92		.	60	340	.		57
	f Tauri,	—25	10 92							
Feb 18th,	ι Tauri,	+20	10 62							
	H Gem	—40	40 58		.	64	532	.		59
	η	—51	30 34							
March 16th,	α Tauri,	—28	13 52		..	48	580			58
March 17th,	α Tauri, .	+24	59 84							
	ζ	—36	19 96		..	65	775	..		60
	C	—51	30 38							
March 19th,	μ Gem	+ 34	56 58							
	ε	+14	08 40		.	64	967			60
	β	—47	17 70							
March 20th,	β Gem	+14	41 18		..	56	1079	.		60
	δ Cancri,	—45	24 46							
April, 18th,	ξ Cancri,	+28	27 10							
	α Leonis,	—31	16 12	.	.	44	1211			58
	γ	—42	33 64							
April 19th,	α Leonis,	+28	07 98							
	γ	+16	50 40			69	1418	.		59
	σ	—41	55 32							
May 17th,	ρ Leonis,	+39	41 06							
	χ	+ 7	17 52							
	γ Virg	—33	35 14	.		75	1718	.		61
	π	—48	37 70							
May 18th, .	ν Virg ..	+22	03 22							
	π	+ 7	00 62			67	1986	.		62
	γ ..	—33	53 12							
	δ	—47	52 56							

Longitude by Moon Culminators, = 4 59 02

The exact agreement of the two is of course a mere chance I think it right however to mention that I have inserted the whole of my observations, and not a selection from them.

VII —*Proceedings of the Asiatic Society*

Wednesday Evening, the 14th January 1835

The Reverend W H Mill, D D Vice-President, in the Chair

After reading the Proceedings of the last Meeting, the Meeting passed to the Ballot for the Office-bearers of the ensuing year, when the Lord Bishop, the Rev Dr Mill, Sir J P Grant, and Mr W H Macnaghten were elected Vice-Presidents, and the Members composing the Committee of Papers last year were unanimously re-elected.

The Honorable Mr. J B MACAULAY, the Honorable Colonel W MORRISON, and Mr WILLIAM CARR, proposed at the last Meeting, were duly elected Members of the Society

The Secretary read an Annual Report on the state of the Society.

For the whole of the past year, the Society had been deprived of the presence of its President, who had been driven to the Cape through ill health The seats of two Vice-Presidents had also become vacant, one by Sir J FRANK's departure to Europe, the other, by Sir C T METCALFE's appointment to the Government of Agra The Obituary List of the past year contained only the venerable name of Dr CAREY, upon whose death, in June last, a tribute of regret and esteem had been recorded on the Society's proceedings The fate of another cherished Member, Mr J CALDER, remained an object of great anxiety, nothing having been heard of him since he sailed from India for the New Colony at St George's Sound in October, 1833 The only faint hope of his safety rested in the report of some natives at Swan River, that a wreck had occurred to the northward, and it was satisfactory at least to know, that a vessel had been immediately despatched to ascertain the fact The result has not yet transpired

Of Members who had tendered their resignation for various causes, the following names were mentioned Messrs G MONEY, M T CLEMISHAW, M LARULETTA, M MANUK, and Raja KALIKRISHNA

The new Members elected, including those of the present Meeting, amounted in number to fifteen, viz Messrs W MARTIN, R SPIERS, A BEATTIE, J S STOPFORD, W MACKENZIE, F RENAULD, Dr A HAMILTON, Lieut W FOLEY, Lieut McLEOD, Lieut -Col LOW, Sir J P GRANT, Mr W GRANT, Honorable T B MACAULAY, Honorable Colonel MORRISON, and Mr W CARR

The following distinguished individuals had been associated as Honorary Members The MEKHARA MENG of Ava, Mr CSOMA DE KORÖS, Professors HEEREN, KLAPROTH, ROSEN, and BUCKLAND, Sir JOHN HERSCHEL, and Col SYKES

The Expences of the year had been very moderate, leaving a considerable balance in the Treasurers' hands

PAYMENTS				RECEIPTS			
To paid for Copies of the Journal Asiatic Society, furnished to Members in 1833, .	928	0	0	By balance of last year,	20	8	
To Establishment and contingent expences from 1st Nov 1833 to 31st Oct 1834, ..	2880	6	0	By Subscriptions collected,	5472	6	
To balance of cash in hand,	3101	10	4	By Interest on Company's Paper, 17,500, at 5 per cent . ..	1417	1	11
Sa Rs	6910	0	4	Sa Rs	6910	0	4

Outstanding Quarterly Bills due, but not yet collected, Rs 2817

The Publications of the past year had been limited to the Index of the 18 volumes of Quarto Researches, now nearly completed, and the Monthly Journal The printing of M CSOMA DE KÖRÖS's Tibetan Grammar was terminated, which would allow a new volume of Researches immediately to be put in hand The Government had been pleased to express its approbation of the manner in which the Tibetan Dictionary and Grammar have been passed through the press, and

had requested that the Asiatic Society would undertake to distribute copies of the work to the principal learned Societies and Universities of Europe and India In complimenting the Author upon the successful performance of his task, and ordering payment of printing expences, and arrears of salary, the Governor General was further pleased to direct the sum of money remitted to M Csoma by Prince Esterhazy and other Hungarian Noblemen in 1832, which was unfortunately lost by the failure of the house of Alexander and Co to be restored out of the public purse, an act of liberality which will doubtless be appreciated in Vienna

The Papers submitted to the Society, during the past year, had embraced the discoveries of Bactrian Antiquities by General Ventura, M Court, Dr Martin, Mr Masson, Dr Gerard, Syed Kera'met Ali, and Mohun Lal The notice of various Hindu Inscriptions, and particularly the Translation of one of the Allahabad Inscription, by Captain Troyer and Dr Mill —the discovery of a submerged town, replete with antiquities, by Captain Cautley, and many other subjects of considerable interest In physical research, the progress of discovery had been unprecedently rapid, and the gigantic fossil bones exhumated from the lower range of hills, by Dr Falconer and Captain Cautley, had even surpassed the noble specimens presented by Dr Spilsbury It was now rendered most probable that a belt of fossil deposit existed throughout the whole line of secondary hills skirting the great Himálayan ridge from Cashmir to Ava It had been penetrated in a few places—at Sewalik, Kooch Behar, and on the Irawadí, but for many years, it might be anticipated that other spots yet unexplored would continue to furnish abundant stores for the investigation of the geologist and the speculation of the cosmogonist

Library

Read a letter from Monsieur Lair, Secretary of the Society of Agriculture and Commerce at Caen, forwarding copies of the various publications of that Society for the past two years

Read a letter from Monsieur Dutrouille, Secretary of the Royal Academy at Bordeaux, forwarding copies of its proceedings, &c for the years 1832 and 33, and proposing an exchange of publications

Read a letter from Professor J. J Marcel, acknowledging his election as an Honorary member, and presenting his recent publications

Histoire de l'Egypte depuis la conquête des Arabes jusqu'à celle des Français

Contes Arabes du Shekh el Mohdv, Nos 10, 11, 12, 13

The following Books were also presented

Journal of a Tour through the Panjab, Afghanistan, &c in company with Lieut Burnes and Dr Gerard, by Munshi Mohan La'l, a native of Delhi—*by the author*

Papers relative to the Mahratta War in 1833-4, *by Mr G T Lushington.*

Hitopadesi, with a Hindee translation, made by a Pundit of the Raja of Bhartpur—*by ditto*

Prithivi Raja Basa, a Hindee Poem, by Chand,—*by ditto.*

Journal Asiatique, No 77, August, 1834—*by the Asiatic Society of Paris.*

Meteorological Register, Nov and Dec 1834—*by the Surveyor General.*

A lithographed map of the Indus and the neighbouring countries, from the

The Government maps—*by M J B Tassin, Artist and Publisher*

The Indian Journal of Medical Science, No. 13—*by the Editors.*

The following books were received from the Booksellers.

Marsden's Numismata Orientalia, 2nd vol

Lardner's Cabinet Cyclopedia—Sismondi's Roman Empire, vol 1st.

For the Museum

A series of Skulls, consisting of 1 Tiger, 5 Antelopes, 3 Chikaras (Reindeer), 1 Hyena, 3 Wolves, and 2 Pariah Dogs, also Models of the Native Plough, of the Cotton and Spinning Wheel, and that of the Mill for grinding Mustard Seed—also models of Carts, &c used in the Bhartpur Territory, and 2 Mewatte Spears, presented by Mr G T LUSHINGTON

Antiquities

Read a letter from Major SUTHERLAND, forwarding the Ancient Inscription presented by Captain J Low, on the 3rd December

[A reduced facsimile of this Inscription is given in Plate III]

An image of Buddha, mutilated in the upper part, was presented by Mr JAMES STEPHENSON

A paper was read describing the locality and manner of its discovery at Bukra, near the pillar known as Bhím Sen's Láth in Tirhút Round the base of the image was a Sanscrit inscription the sculpture is in good taste and well finished

Further relics and coins dug up at Behat, near Seharanpur, were received from Captain CAUTLEY

A letter was read from Captain E E WESTMACOTT, 37th N. I Assistant, Governor General's Agent at Assam, forwarding a description of the town of Shahpurí in the Udayapur district, and also an account of the Ramsanchís, a sect of Hindu Schismatics in Western India

Physical

A collection of the various formations of tufaceous kankar from the bed of the river Jamna, inclosing shells, wood, and bones, was received from Serjeant DEAN, and a further assortment of the fossil bones discovered therein

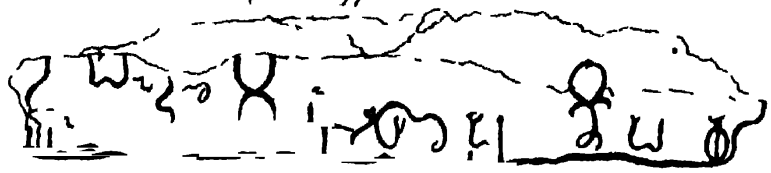
A letter from Dr SPILSBURY begged the Society would accept of the fossil bones formerly transmitted for its inspection by him

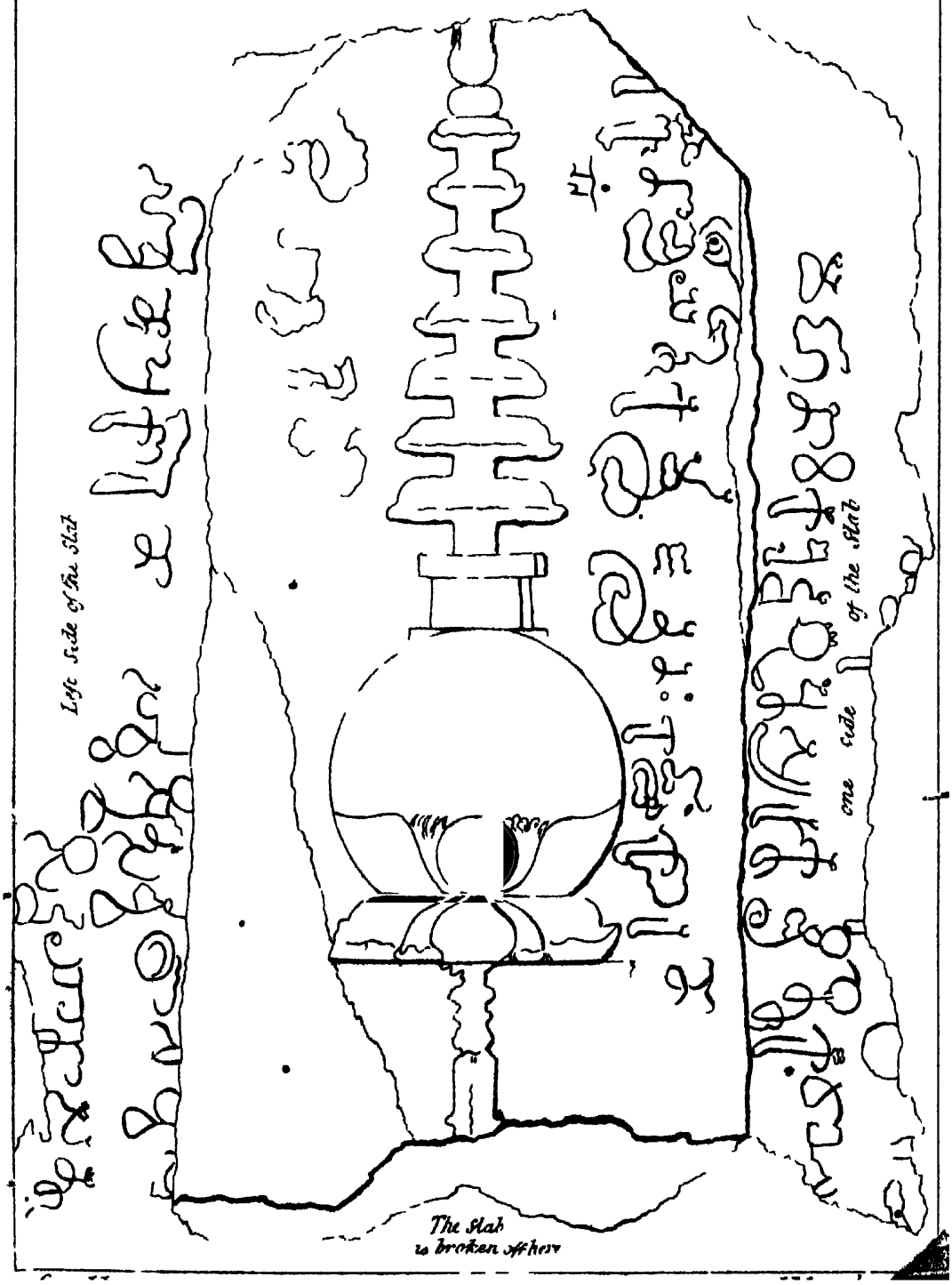
The following extract from a letter from Major COLVIN, Engineers, was read

" You have been informed of the successful results of the researches which have lately been carried on in the lower hills in this vicinity for fossil remains, and the subject has been taken up with such spirit and desire to attain information, that in all probability valuable use may be made of the facilities for studying the subject so immediately in the vicinity of the deposit, but it has struck me much good might result from the means of pursuing the inquiry being more extended, by the Society's Museum being provided with specimens of the fossil remains of these hills, and as I am neither a geologist nor have the leisure to make myself one, I have obviously no motive for collecting a cabinet myself I propose therefore excavating and collecting for the Museum of the Asiatic Society, who will I hope accept of what the party I have set to work may find, they have commenced under an intelligent man, who has learned to

Copy of an Inscription on a Stone found near the ruins of a Buddhist Temple in Province Wellesley, Malayan Pen^a

Upper Side





recognize a fossil at sight, and to be careful in their extraction from the rock when so situated but so many have been found fallen down from their original position, that many will likely be so now, and the wonder is that they have not been before recognized and brought to notice through the natives in the neighbourhood, who it would now appear have occasionally picked them up The space I have selected for the operations of my party is the portion of the hills embraced between the embouchures of three mountain torrents, which united form the Sombe river, lying about half way between the Jamna and Nahun, to the right and left of which are the hills from which the specimens already collected have been brought I may therefore expect to be successful, and though I have not seen the outlets of these three heads of the Sombe, I may presume the sections in the range of hills to be both deep and extensive from the floods which pass down there in the rains I intend when I have an opportunity to visit them, and in the mean time have taken measures to have the localities of the specimens attached to each as brought out I expect to be able to despatch the first results of my search from Delhi before three months are over These fossils appear to me to correspond with those found by Dr SPILSBURY, described in the Journal for August One lower end of a thigh bone is little less in breadth than that drawn in the plate, and an end of a corresponding bone of the fore-leg appears to me of equally gigantic dimensions I believe you have not yet actually seen any thing from these hills, and inclose you a tooth I hammered out of the rock at the Kalowala Pass, wrapped in *Upland Georgia* cotton "

The best thanks of the Society were voted for Colonel COLVIN's obliging offer

With reference to the same subject, the following extract from a private letter, (received subsequently to the Meeting,) from Dr H. FALCONER will be read with interest it is dated Mussooree, 3rd January, 1835

" You have heard from Capt CAUTLEY and Lieut BAKER about the late fossil discoveries up here I have come in for a lion's share of them In one of my tours I had to return by Nahun, and having heard of the tooth presented by the Raja, in October, to Lieut BAKER, I made inquiry and had a fragment of a tooth presented to me also I got a hint of where they came from, and on going to the ground, I reaped a splendid harvest Conceive only my good fortune within six hours, I got upwards of 400 specimens of fossil bones! This was on the 20th November, a couple of days after Lieuts BAKER and DURAND had got their first specimens through their native collectors

" Capt CAUTLEY has since got about 10 specimens my collection amounts to nearly 400 and it is exceedingly rich and varied There are more species than Messrs CRAWFORD and WALLICH got from the Irawaddí Here are some of the results from a rapid examination of Capt CAUTLEY's collection, (not including the Kalowala fossils noticed in all his late letters in your Journal,) and my own

Mastodon Elephantoides A most perfect cheek tooth, left side of lower jaw, 13½ inches long! indicating an animal of immense size Portions of the ivory tusks of do, ribs, and huge fragments of bones of the extremities H F's collection

Mastodon Latidens? cheek tooth doubtful from being water worn CAUTLEY's

Hippopotamus Fragment of the lower jaw with teeth H. F's collection.

Rhinoceros? doubtful CAUTLEY's and H F.'s collections

Tapir ? doubtful from water-wearing,

Ruminantia A beautiful entire half of lower jaw of a large deer H F 's

Crocodile Vertebræ of immense size, teeth, and other bones H F 's collection

Chelonians Two species of Emys, one of Trionyx

Vertebræ of four distinct mammalia, which the want of means of identifying satisfactorily prevents me from venturing a vague opinion of A great number of other bones besides, which will admit, many of them, of being determined. There are some traces of new forms of structure among others a tusk of a Pachydermatous animal, about ¾ of an inch in thickness, longitudinally channeled like the tusks of the Hippopotamus, and curved, with its apex worn down to an oblique disk, but having a reniform, transverse section, channeled with a deep fossa along its concave curve This is but the commencement of the discoveries, and among the Pachydermata, I expect many additional results either in Anoplotherii? Lophiodons and Anthracotheria, or analogous forms in their place and most assuredly Tapirs at least In fact, in Capt CAUTLEY'S collection (the Kallowala one from the clay marle) of which he has given you so much of the details, there is a small tooth, which I imagine belongs to an extinct Pachydermatous animal, allied to Anthracotherium His zeal is beyond all praise The moment he got the scent, from some bones I found in the Limli pass, he was off to the field in the Kallowalla Pass, and ever since it has been but a continuous search with him He has lately turned out a beautiful and most perfect molar tooth of the upper jaw, right side, of a species of the genus Equus, which now puts his inference of the existence of Solipeda in the deposit, at first deduced from an incisor tooth, beyond all doubt It has the roundish solitary lateral pit of the inner side completely surrounded by a ridge of enamel whereas in existing species, the pit is open internally, and the ridge of enamel which encircles it, is continuous with the other flexures of enamel of the tooth It therefore, perhaps belongs to a new extinct species The Lithological details of the Sewálik formation are equally interesting with the fossil ones, and when worked out, will read as instructive a lesson regarding the Geomorphic operations, at the foot of the Himálayas, during centuries of ages past, as the fossil remains do, regarding the former tenants of the tract By the bye, the fossils I have mentioned, Mastodon Elephantoides, &c establish an identity of formation between the upper beds of the Irawaddí deposits and the upper deposits included between the Sewálik and the Himálaya range Several of them are the same as those found by CRAWFORD and WALLICH, and it appears, that all along the foot of the Himalaya, from the Panjáb, down to the Irawaddi, there is a nearly continuous series of tertiary formations, more or less upheaved at different points along the line, but in all their great features, they appear chiefly developed in the Jamna Gangetic portion, where they are upheaved to upwards of 1500 feet above the plains

In a late excursion to Jamnautri I collected materials for a section from the snowy range on to the plains, like Dr ROYLE'S, but perhaps more copious. I have found the trap rocks extensively distributed and far in the interior The whole tract on this side the snow is primitive, and the line of the snowy peaks is primitive also I am convinced that they are not like the high mountains of the Andes, porphyries and other trappean masses burst through the surrounding formations, but primitive schists upheaved to a higher level

than the surrounding hills You have heard much of the scenery, but I wish you had seen some of it, for no pencil has yet done justice to it To mention one conceive yourself on the top of the Choor mountain, nearly 13,000 feet above the level of the sea, a lofty ridge half way between the snowy range and the plains, high above every thing around Imagine a glance to the north, or front, with an uninterrupted stretch of upwards of 90° of snowy mountains, without a break, clear, white, and dazzling, starting up against a back-ground of deep-blue sky, so rich and intense, as you have never seen conceive an ocean of mountain waves, running on from your feet to the snow, you looking down upon and overtopping all Turn round to the rear or south, and you have another sea of hills, with the plains of Hindoostan beyond, stretching far off into the distance, and traversed by here and there a streak of silver, marking the miniature course of the mighty Jumna Look to right and left, and you have a view of mountains, bounded only by the limits of vision the huge masses of huddled granite about you forming a fine offset to the whole I imagine that as a panoramic mountain view, that of the Choor is not to be exceeded in any country, and it is but a sample of the rest The only want is in lake scenery, and of this there is nothing worthy of the name "

VIII.—*Miscellaneous*

1 —*Explanation of the differences in the quantity of Rain at different elevations*

It had invariably been remarked by meteorologists that a rain-gauge, placed at an elevation, collected less rain than one situated on the surface of the ground, yet no satisfactory reason could be assigned for such a discrepancy The British Association for the Advancement of Science determining to place the facts of the phenomenon on such a footing as to be afterwards capable of tolerably strict analysis, engaged Messrs W Gray and J. Phillips, to conduct a year's experiments on the top of the Cathedral at York, and the result was made the subject of a report by the latter to the meeting at Cambridge in 1833, which sets the matter at rest in a most satisfactory manner

The site of the experiments was well selected, York being in the centre of a very extensive valley, and the Minster tower, elevated 200 feet from the ground, looks down upon an area of 1000 square miles, with no object of nature or art rising to within 100 feet of its summit

One gauge of the simplest construction was attached to a pole, elevated nine feet above the battlements, 242 feet above the river,—another was registered on the roof of the museum, 72¼ feet,—and a third on the ground in the museum garden, at 29 feet above the river.

The gauges were 10 inches square, and could be easily read off to the 1000th of an inch fall

The report gives a tabular view of the whole rain of the year, but it will be sufficient here to notice the totals of the 12 months, which were as follows

	Minster	Museum.	Ground
Total Rain-fall in the year,	15 910	20 461	24 401
or deducting a snow storm in Feb	15 715	20 182	23 785

Mr PHILLIPS arranges the numerical results of the experiments, in relation to mean temperature, and the season of the year, so as to deduce the *ratios* of quantity at the several stations, in the following table

Periods	Mean Temp	Inches on Minster	Of Rain, On museum	On ground	Ratios		
Whole year,	48 20	15 715	20 182	23 785	66 1	85 3	100
7 coldest months Oct —April,	40 8	7 089	9 725	12 079	58 6	80 5	100
7 warmest months April—October,	55 5	11 146	13 669	15 666	71 2	87 1	100
5 coldest months Nov — March,	39 3	4 569	6 414	8 119	56 2	79	100
5 warmest months,	58 5	8 626	10 457	11 706	73 7	89 2	100
Winter quarter,	36 3	1 626	2 326	3 297	49 3	70 5	100
Spring quarter,	47 6	3 144	4 202	5 256	59 8	80	100
Summer quarter,	60 8	6 261	7 414	8 121	77 1	92 5	100
Autumn quarter,	48 3	4 681	6 240	7 111	65 8	87 7	100

The first remark which occurs on the inspection of this table is that the ratio of diminution of rain for altitude of position is nearly constant Mr PHILLIPS shews that it is represented by a simple formula, depending on the square root of the height with one variable co-efficient, or $m \sqrt{h} =$ the diminution of rain at the given height.

Thus for the whole year (m being made $= 2\ 29$)

for the Minster, $m \sqrt{h} = \sqrt{212\ 8} \times 2\ 29 = 66\ 5$, by observation 66 1, to 100

for the Museum, $m \sqrt{h} = \sqrt{43\ 6} \times 2\ 29 = 84\ 9$, by observation 85 3, to 100

In like manner for the seven coldest months, ($m = 2\ 88$,) the ratios are found

by calculation,	58	81	100
by observation,	58 6	80 5	100

and for the seven warmest months, ($m = 1\ 97$,) the same quantities are found,

by calculation,	71 3	87 0	100
by observation,	71 2	87 1	100

and so on, for the five-monthly periods of averages For the shorter periods, the accordance is of course less striking, but it obtains even in single months, and the same formula is found to apply to Dr HEBERDEN's experiments on Westminster Abbey, with a due variation in the co-efficient m Whence it is concluded that the *relation to height* is constant

But it is evident that the values of the *variable* co-efficient were very different, that its maxima and minima, were, perhaps, not quite in the same periods of the year at Westminster as at York, and that the range of variation in its value is much less From M ARAGO's determination of the relative quantities of rain falling on the observatory at Paris, and in the court below, the relative mean value of m, at Paris $= 1\ 24$, while at Westminster, it is 4 23, and at York, 2 29 These discrepancies are discouraging, and will probably deprive the most exact local determinations of a general application. However, on account of the re-

markable regularity of the progress of monthly temperature at York, and some obvious relations between the quantity of rain collected, and the mean temperature of the period, some inferences unavoidably suggested themselves.

First The diminution at the upper stations is greatest in the cold, and least in the warm seasons, and therefore the co-efficient is in some way *inversely* dependent on the temperature Mr PHILLIPS found the relation very nearly represented by the formula $2\,m = a\,\frac{t}{t'} + a\,\frac{t^2}{t'^2}$ where a = the ascertained value of m for the whole year, t the mean temperature of ditto, and t' that of the particular period

Secondly The relation between the values of m and the *dryness* of the air is inverse, whether expressed by the difference between the mean temperature and the dew point, or, as that is seldom known, by the *mean range* of daily temperature, which had been determined for York from a long series of observations by Mr F CHOLMELEY, to be as follows

January range,	8 0	May,	19 7	September, .	16 0
February—, .	10 1	June,	20 1	October, ..	11 8
March—,	13 1	July,	19 6	November, .	9 0
April—,	16 2	August, . .	17 7	December,	7 7

General mean daily range, 14 08

Now if m be taken inversely as the mean range of temperature, r, or $m = \frac{a}{14\ 08}$ the accordance between the calculated and observed values of the co-efficient is very close

(a = 2 29)	value of m		value of m
for the 7 coldest months, by calculation,	2 98	by observation,	2 88
7 warmest months, ———	1 86	———	1 97
5 coldest months, ———	3 36	———	3 06
5 warmest months, ———	1 73	———	1 73

and so on throughout The concluding remarks of Mr PHILLIP's explain the hypothesis he has framed for the explanation of the phenomenon which led to the experiments, and to us it appears most clear and conclusive

" So remarkable and continued an accordance between the co-efficients fixed by observation and those derived by two methods from a very simple view of the condition of the air as to heat and moisture, appears to me decisive of the question as to the general cause of the *variation of the quantity of diminution of rain at any one height* above the ground It has already been shown how strictly the observations warrant the conclusion that the *ratio of diminution at different heights is constant* through the whole year It is therefore rather as a matter of very probable inference than a plausible speculation that I offer the hypothesis, that the whole difference in the quantity of rain, at different heights above the surface of the neighbouring ground, is caused by the continual augmentation of each drop of rain from the commencement to the end of its descent, as it traverses successively the humid strata of air at a temperature so much lower than that of the surrounding medium as to cause the deposition of moisture upon its surface This hypothesis takes account of the length of descent, because in passing through more air more moisture would be gathered, it agrees with the fact that the augmentation for given lengths of descent is greatest in the most humid seasons of the year, it accounts to us for the greater absolute size of rain-drops in

the hottest months and near the ground, as compared with those in the winter and on mountains, finally, it is almost an inevitable consequence from what is known of the gradation of temperature in the atmosphere, that some effect of this kind must necessarily take place The very common observation of the cooling of the air at the instant of the fall of rain, the fact of small hail or snow whitening the mountains, while the very same precipitations fall as cold rain in the valleys where the dew point may be many degrees above freezing is enough to prove this A converse proof of the dependence of the quantity of rain at different heights on the state of the air at those heights, is found in the rarer occurrence of a shower falling from a cloud, but dissolving into the air without reaching the ground Lastly, I cannot forbear remarking, that this hypothesis of augmentation of size of the elementary drops agrees with the result that the increase of quantity of rain for equal lengths of descent is greatest near the ground for whether the augmentation of each drop be in proportion to its surface or its bulk, the consequence must be an *increasing rate* of augmentation of its quantity as it approaches the ground

"The direct mathematical solution of this problem, now that the laws of cooling and of the distribution of temperature have undergone such repeated scrutiny, may perhaps be attempted with success, but for the purpose of eliminating the effects of periodical or local modifying causes, it is desirable that observations on the same plan should be instituted at many and distant places,—both along the coasts and in the interior,—in the humid atmosphere of Cornwall and in the drier air of the mid-land counties Always, at least three stations should be chosen, as open as possible, one of them very near to the ground their relative heights, the mean temperatures, the mean ranges of temperature, and the mean dew point for each month should be ascertained It would be useful to measure the size of the rain-drops, and, if possible, their own temperature The height of clouds according to the plan of Mr DALTON, in his *Meteorological Essays*, and the direction and force of wind should be noted, and distinctions made between snow, hail, and rain Some of these data I have not yet found the means of procuring, partly in consequnce of the great labour and time required, and partly from the difficulty of well arranging the experiments themselves But since it is now ascertained that the general results follow some settled laws, and that the effects may be very well appreciated at moderate heights, I hope not only to procure these, but also several other data towards the completion of the theory of this curious subject, the patient investigation of which cannot fail to give us new and penetrating views into the constitution of the atmosphere"

It will be a curious subject of investigation to determine the applicability of the law of altitude and moisture to this country, and to fix the value of m This latter may, in some measure, be done from the long series of observations published in the Surveyor General's Meteorological Register but for the law of height, we shall require a higher station, and we invite any zealous meteorologist who may have leisure to fix his pluviameter on the top of the OCHTERLONY monument, a chuprassee may easily be taught to observe it daily throughout the rains.

2 *An unusual Sea-Monster in the Bay*

[Extract of a Letter from Lieut W FOLEY, 25th Nov 1834]

On my voyage to Madras (in May last), I saw a most extraordinary fish, and which had never before been seen by any seaman on board, although some of the

officers and crew had been employed in the whale fishery It was of the size of a whale, but differing from that animal in shape, spotted like a leopard, in a very beautiful manner it came close under the stern of the ship, during a calm, and we had a magnificent opportunity for viewing it it had a very large dorsal fin, which it moved about with great rapidity when made angry in consequence of the large stones that we threw down upon it rashly, for it possessed sufficient strength to have broken the rudder and stove in the stern of the ship Several large fish (seemingly Dog-fish), about a cubit in length and upwards, were gamboling about the monster, entering its mouth at pleasure and returning to the water again The following will give you some idea of its shape The mouth very large, dorsal fin black or dark-brown, tail also, body covered with brown spots like a leopard, head lizard-shaped May it not be the *Plesiosaurus*, or a species of that fish known to have existed formerly in the waters of the ocean? Having given you this statement, it is proper that I should give you the names of those who were also eye-witnesses of the existence of this extraordinary animal They are as follows

1 Captain TINGATE, at that time commanding the ship "*Cashmere Merchant*," now commanding the "*Competitor*"

2 Mr SMELLIE, Mr PIKE, and Mr LANDERS, officers of the vessel

The above gentlemen will corroborate my statement (Captain TINGATE and Mr SMELLIE were old sailors, and had never before seen the fish, or one resembling it There were also several European seamen on board, not one of whom had ever seen it before

[All we can venture to say on this authenticated account is, that the monster described is not a *Plesiosaurus* as Lieutenant FOLEY suggests, as that reptile has no "dorsal fin" What it may be, we must leave others more competent to decide, but the unusual nature of the notice should by no means prevent the insertion of a description supported by such unequivocal evidence.—ED]

3 *Suspension of the Survey of the Brahmaputra River*

For the last four years, an accurate trigonometrical survey of the Brahmaputra has been in progress, to connect the map of this river from Goalpára, where it terminated in Captain WILCOX's Survey of the Assam Valley, (see the 186th sheet of the "Indian Atlas," or the lithographed map in the 17th volume of Researches,) with the surveys of the Ganges, the Sunderbans, and finally with the grand meridional arc. Captain WILCOX and Lieutenant OMMANNEY, Engineers, completed the measurement of the Jenai, which now forms the main stream of the Brahmaputra, from Jumálpur to its confluence with the Ganges at Jáfirganj, and the latter officer had in 1830 since been engaged in tracing the line of the river from goalpára round the difficult country at the foot of the Kásia mountains, to within 30 miles of Dacca, when a sudden order of Government lately directs the whole work to be suspended, and in fact, all that has been done, to be rendered comparatively useless for want of the connecting link which it would not have taken three months to complete! Geographers at home will be at a loss, as we ourselves are, to account for a measure apparently so impolitic, and we cannot help thinking, that a word of explanation to the proper authorities would still be in time to remedy the mistake

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of January 1835

Day of the Month	Observations at 10 A M: Standard Barometer at 32°	Wet Barometer do.	Aq. Ten. deduced	Ther in air	Wet-bulb Depression	Leslie's dif Hygrom	Hair Hygrometer	Observations at 4 P M: Standard Bar at 32°	Wet Bar at do	Aqueous Ten deduced	Thermometer in air	Wet-bulb depression	Leslie's dif Hygrom	Hair Hygrometer	Register Thermometer Extremes: Cold on roof	Heat in sun	Rain, inches	Wind: Morning	Wind: Evening	Weather: Morning	Weather: Evening
1	29,880	,050	,830	70,0	8,0	7,8	86,	,810	,932	,878	71,8	10,5	9,6	81	54,0	90,		nw	n.	clear	clear
2	,894	,120	,774	68,1	7,1	6,7	89,	,766	,858	,908	71,2	11,6	10,7	79	55,	95,		nw	n	do	do
3	,920	,134	,766	68,1	8,0	7,0	9,	,808	,920	,888	71,5	10 6	10,3	79	54,	99,8		nw	n.	do	do
4	,812	,988	,824	69,8	6,5	6,0	92,	,716	,782	,934	73,5	11,8	10,4	81	53,	98,		SW	sw	do	do
5	,848	,012	,836	70,2	9,7	8,7	83,	,764	,898	,866	73,4	12 6	11,8	73	60,3	99,8		NW	nw	do	do
6	30,016	,240	,776	68,5	9,6	9,4	78,	,898	,070	,828	70,6	12 9	11,7	69	52,9	94,6		nw	nw	do	do
7	,068	,386	,682	65,3	10,7	9,9	75,	,098	,198	,900	68,0	12,9	11,7	67	45,0	96,7		nw	nw	do	do
8	,068	,408	,660	64,7	8,4	6,8	83,	,922	,166	,776	68,0	13,0	11 9	68	47,1	97,0		nw	nw	do	do
9	,056	,386	,664	63,7	8,4	7 8	81,	,920	,156	,764	67 9	13 0	11,8	67	44,5	97 7		nw	w	do	do
10	,044	,378	,666	65,2	9,2	8,3	81,	,944	,194	,750	68,6	13,0	12,7	65	42,0	102,8		n	w	fog	do
11	29,971	,300	,671	65,8	8,8	7,7	84,	,024	,335	,680	66 3	7,8	6 7	87	47,7	102,0		W	w	clear	do
12	,837	,074	,763	69,1	12,8	11,6	74,	,912	,1-6	,766	69,0	12,1	11,3	74	45,2	102,4		w	w	do	do
13	,846	,158	,738	68,1	3,4	4,1	98,	,756	,894	,866	72 1	5,7	5,3	93	52,2	96,0		sw	SW	fog	do
14	,970	,234	,736	67,7	5,4	5,3	91,	,850	,060	7 0	70 5	12,7	12,2	68	58,5	105,4		nw	nw	clear	do
15	30,014	,340	,674	67,2	10,0	9,6	75,	,894	124	,770	70,1	13 7	8,0	67	53,2	97,0		nw	nw	do	do
16	,004	,388	,616	65,9	7,6	7,6	86,	,860	,166	,694	69,2	14 0	13,7	64	44,0			nw	nw	do	do
17	29,957	,333	,624	67,1	9,4	8,5	82,	,846	,124	,722	70,3	11,6	10,6	75				ne	se.	do	do
18	,976	,340	,636	68,4	6,0	6,0	90,	,879	,150	,729	70 5	5,9	5,5	94				n.	se	do	do
19	,998	,350	,648	65,7	4 2	4,4	96,	,876	,084	,792	72 4	7,9	8,0	88				se	se	do	do
20	,956	,298	,658	70 3	3,3	3,9	97,	,806	,044	702	73 5	6,2	5,4	92				W	SW	do	hazy
21	,940	,174	,766	72,2	3,7	3,9	98,	,880	,198	,6 2	75 3	7,6	7,4	90				sw	W	do	clear
22	30,024	,296	,728	72,7	4 1	4 2	98,	,950	,134	,616	74,4	7,1	6,4	94				sw	SW	clouds	do
23	29,940	,422	,518	6 0	11,3	10,2	73,	,020	,24	,796	71,5	12,7	12,	69	54,5	93 0		nw	NW	clear	do
24	30,110	,558	,552	66 7	11,5	10,7	68,	,018	332	656	79,4	13,5	13,3	62	48,5	92,0		nw	n	do	do
25	,085	,484	,601	66 5	10,0	9,5	75,	,000	324	,676	6 5	11,8	11,2	71	42 0	10 5		N	nw	do	do
26	,148	,536	,612	66,7	9,5	8,8	79,	,042	370	,672	6 8	12,4	12,1	68	43,6	102,1		nw	n	do	do
27	,158	,550	,608	66,5	7,3	6,7	84,	,024	,290	,734	69 9	11,9	11 8	73	45 7	107,2		w	nw	do	do
28	,099	,484	,615	65,7	7,2	7 7	83,	,682	,244	,734	70,3	13,5	14,0	66	43,0	108,4		W	N	do	do
29	,069	,433	,636	68 0	8,8	8,8	82,	,548	,180	,768	71,3	16,1	11,0	61	50,	98,8		nw	nw	do	do
30	,068	,428	,640	67,6	8 7	9,4	79,	,050	,198	,752	71,1	15,0	15,1	64	48,3	101,4		nw	nw	do	do
31	,094	,449	,645	67,4	9,1	8,9	81.	,084	,24	,730	71,0	15,7	14,3	64	46,3	100,0		W	W	thick fog	do
Mean,	29,997	,314	,683	67,8	8,0	7,6	84,	,908	,127	,781	70,7	11,5	10 6	74				northerly airs		clear-cold weather	

The object of the present year's observations will be to shew what reliance may be placed on a Barometer, the tube of which has been wetted with well boiled water before filling in the mercury The instrument used has been registered for some months past Comparison is also made of a differential thermometer for measuring the depression of temperature produced by evaporation, and the ordinary wet-bulb thermometer The instruments used are the same as during the last year

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I – *Some Account of a Sect of Hindu Schismatics in Western India, calling themselves Rámsanèhí, or Friends of God. By Capt.* G. E. WESTMACOTT, *Asst. to the Gov. Gen's Agent, N. E. Frontier.*

OF THE MAHANT OR RELIGIOUS SUPERIORS OF THE ORDER.

RÁMCHARAN, the founder of the Rámsanèhís, was a Rámávat Byrágí, born A. D. 1719*, at Sorahchasen, a village in the principality of Jypur The precise period, nor the causes, which led him to abjure the religion of his fathers, do not appear; but he steadily denounced idol-worship, and suffered on this account great persecution from the Brahmans. On quitting the place of his nativity in 1750, he wandered over the country, and eventually repaired to Bhílwára, in the Udipur territory, where after a residence of two years, Bhím Singh, prince of that state, and father of the present Rána, was urged by the priests to harass him to a degree which compelled him to abandon the town

The then chief of Sháhpura, who also bore the name of Bhím Singh, compassionating his misfortunes, offered the wanderer an asylum at his court, and prepared a suitable escort to attend him; the sage, while he availed himself of the courtesy, humbly excused himself from accepting the elephants and equipage sent for his conveyance, and arrived at Sháhpura on foot, in the year 1767; but he does not seem to have settled there permanently until two years later, from which time, it may be proper to date the institution of the sect. Rámcharan expired in the month of April, 1798, in the seventy-ninth year of his age, and his corpse was reduced to ashes in the great temple at Sháhpura.

* A. Samvat 1776.

K

Sadha Rám, Governor of Bhílwára, a Bania of the Deopura tribe, was one of Rámcharan's bitterest enemies he on one occasion dispatched a Singí* to Sháhpura to put the schismatic to death, but the latter, who probably got information of his purpose, bent his head low as the man entered, and told him to perform the service on which he was deputed, but to remember that as the Almighty alone bestowed life, man could not destroy it, without the Divine permission The hired assassin trembled at what he took for preternatural foresight in his intended victim, fell at his feet, and asked forgiveness.

Rámcharan composed 36,250 Sabd or hymns, each containing from five to eleven verses thirty-two letters go to each aslok, which give the above total He was succeeded in the spiritual directorship by Rámjan, one of his twelve Chèla or disciples This person was born at the village of Sirsin, embraced the new doctrine in 1768, and died at Sháhpura in 1809, after a reign of 12 years, 2 months and 6 days. He composed 18,000 Sabd

The third hierarch, Dulha Rám, became a Rámsanèhí, A D 1776, and died in 1824 he wrote ten thousand Sabd, and about four thousand sakí, or epic poems, in praise of men eminent for virtue not only of his own faith, but among Hindus, Muhammedans, and others

Chatra Dás was converted at the early age of twelve years, ascended the throne† in 1824, and died in 1831 He is said to have written 1000 Sabd, but would not permit their being committed to paper

Náráyan Dás, the fourth in descent from Rámcharan, now fills the chair of spiritual director

On the demise of a Mahant, an assembly of the priests and laity is convened at Sháhpura to elect a successor, who is chosen with reference alone to his wisdom and virtues He is installed on the thirteenth day after the office falls vacant, on which occasion the Byrágís entertain the entire Hindú population of the town with a banquet of sweetmeats at the temple within the city-walls, known by the name of Rammerí‡

The only difference between the garb of the Mahant and that of the priests consists in the quality of the cloth, which is made of cotton of

* Singí. A particular cast of Hindus, so called in Rájwára from their conducting a number of their own, and of the Mahesri and Surnogí tribes of Banias, to noted places of pilgrimage, free of all expence The word is evidently a corruption from Sangí a companion.

† Gaddí is the term invariably applied to the cushion of the superior and Mahárá (mighty prince), the only title by which he is addressed and spoken of by the Rámsanèhís They approach him with profound obeisance, reverently touch his foot, and lay their foreheads to the marble on which he is seated.

‡ Merí signifies an upper-roomed house in the language of Rájwára.

rather a finer texture than theirs their diet is the same, and consists of dry cakes of coarse wheat flour without any kind of seasoning. The superior resides at Sháhpura, the chief place of their religion, but occasionally leaves it for a period of one or two months, wandering over the country to mortify his body and accustom it to endure fatigue

Religion

The Rámsanèhís believe in the unity and omnipotence of God, whom they regard as the Author of creation, preservation, and destruction, nor so far as I could learn, do they hold his nature and attributes to differ materially from the doctrine professed by ourselves They call the Supreme Being, Rám, he is the source of all good, and the averter of evil, and as none can fathom his decrees, resignation to them is implicitly enjoined Man is pronounced incapable of any exertion of himself whatever comes to pass is accomplished through the Divine Agency, and as God alone is the bestower of rewards and punishments, the Rámsanèhis are instructed to be constant in his worship, in the morning, at noon and night, and always to ask his blessing before going to meals The soul is believed to be an emanation from the Divine spirit, which takes flight to heaven on the dissolution of the human frame, and they inculcate, if a person commit sin, who has enjoyed the advantages of education and is versed in the scriptures, no future act however exemplary can procure his remission from punishment, but in the case of an illiterate man, that he may by study, devotion and repentance obtain absolution of his crimes.

The formation and worship of idols is expressly prohibited. The Rámsanèhís pass the Hindu gods unnoticed, and no sort of images or symbols of idolatry are admitted into their temples When I pointedly asked Náráyan Dás his opinion of idol-worship, he replied in verse —' As to lave the body in the ocean is equivalent to bathing in all the rivers of earth, since they flow into the great deep, and to irrigate the roots of a tree is sufficient without further waste to nourish and bring forth its leaves, its flowers, and its fruits, so to worship the omnipotent God, does away the necessity of addressing all inferior deities '

The Mahant said it was a mistake to suppose the doctrine of the sect was new —it had in fact existed in the world from a very remote period, though shorn of its purity by admixture with debasing superstitions and false tenets, engrafted upon it from time to time by the ignorant and designing Men were born in every age who held sound principles of belief, but persecution compelled them to recant their opinions, or to take refuge in the wilds. It was reserved for

Rámcharan to frame a code from the most approved writings of Hindu law-givers to avoid giving a shock to the prejudices of the people he desired to convert, he wisely took the Shástras for his guide, culling that which was good, and rejecting all that he deemed mischievous—and he called those who adopted his opinions Rámsanèhí, friends or servants of God

The Mahant readily engaged to furnish me with a complete collection of their sacred writings, but as there was but one copy in the temple, I succeeded in bringing away with me only a few selections, of which I subjoin a translation The head of each page is inscribed with the holy name of Rám, used by the society as an initial title of respect, corresponding with the Alif (Allah) of the Musalmans, and Sri of the Hindús, and signifying, that an author solicits the blessing of God on commencing a work, and invokes success on the undertaking

The Mahant wrote the first Sabd in an elegant hand, the rest were transcribed by the priests in a corresponding style of beauty, and red ink-marks are introduced in the commencement and end of each couplet The religious works of the Rámsanèhis are written in the Deva Nágarí character, and chiefly in the Hindi language, with an admixture of Rájwára provincialisms—but there are also a great many Sanskrit and some Panjabí verses, and Arabic and Persian words likewise find a place

Of the Priests

Priests are called either Byrágí or Sádh, and are divided into three classes, the two last of which, denominated Bedehí and Mohaní, I shall notice presently They are enjoined to study the holy writings, and to disclaim all merit in their works to observe celibacy, chastity, humility, abstinence, and contentment to put a restraint upon the tongue to sleep little to accustom the body to hardships and fatigue : and to exercise charity, liberality, and mercy Anger, brawls, avarice, selfishness, usury, gaming, lying, theft, lust, hypocrisy, and all kinds of luxuries are strongly denounced

Priests are commanded never to look at their face in a glass, nor to use snuff, perfumes, or ornaments, as such things savour of vanity To go bare-footed, and on no account to ride on any kind of conveyance never to destroy any thing animate, nor to live in solitude, nor to ask or receive money Dancing, music, and other frivolous amusements are forbidden, and to taste of tobacco, opium, and all intoxicating drugs and spirits

They are not permitted to prepare medicines, but do not object to receive them in time of sickness at the hand of a stranger.

It may be right to mention in this place, that many of the reasons given for the institution of particular rites were received from the chief of the Rámsanèhís, to whom I made three visits he usually delivered himself in Sanskrit verse, which he afterwards explained in the local dialect, for the instruction of his hearers

It was a maxim of Rámcharan that woman and gold in the present vicious state of society were the principal sources of mischief in the world, he therefore enacted a strict ordinance for priests to shun both of them The founder, a married man without a family, set the example of putting away his wife, and this sacrifice, with the desertion of one's children, are essential to obtain admission to the order: but the families of these Byrágís are, I believe, in all cases comfortably provided for So strictly is the rule of continence enforced, that a priest is only permitted to converse with females on matters connected with religion, the smallest approach to levity would involve the dismissal of the culprit Dulha Rám, the third Hierarch, was affianced at the time he became a Rámsanèhi, and of course broke troth and cast away the kangna or thread bound round a bridegroom's wrist, hence his name Dulha or the Bridegroom A Turan*, representing a bunch of flowers in stone, is suspended under the porchway of his shrine at Sháhpura, in commemoration of the circumstance

Gold is supposed to beget avarice, and to accept of it destroys the integrity of all previous acts of piety and virtue I combatted its interdiction on the plea that the misuse, as of every thing else, was to be guarded against, but that it was capable of working much good —and inquired if women were thought so ill of, why the sect admitted female converts "The touch of gold," said Náráyan Dás, "is a lure to sin, and marriage is prohibited to ecclesiastics (not to the laity), because the cares of a family would interfere materially with their holy meditations. The heart should be fixed on one alone (God), he who places his affections on any thing mortal, ceases to be a Byrágí." It is related, in example of the little value set on lucre by the Rámsanèhís, that a man presented Dulha Rám on some occasion with a philosopher's stone, which the sage received in silence and cast into a well The author of the gift, indignant at the contempt shown to his offering, preferred a complaint to the Rája of Sháhpura, who asked the superior the motive of his conduct The man having acknowledged he bestowed away the stone, the Mahant inquired how he could

* It is usual among Rájpúts of all ranks, at the time of a wedding, for the father of the bride to suspend a bunch of flowers made of silk or wood, called turan, at his porchway, which the bridegroom strikes with the handle of a whip or stick before he enters to bear away the bride.

in reason complain of the loss of what did not belong to him —" Your motive," said Dulha Rám, " in presenting the stone was to tempt me to evil , but I covet not gold, nor is the transmutation of metals fitting employment for a mendicant take ye twenty rupees and begone "

A Byrágí, convicted of receiving money, is branded on the forehead with a metal coin, heated for the purpose, and ejected from the community Yet this interdiction, however strict, must be regarded as nominal, since lay followers receive money for the use of the order—and two Banias of the sect residing in Sháhpura are appointed expressly to receive remittances, lend out money, and carry on trade on account of the holy fraternity

A woman may become a priestess, as in the instance of Sarúp, a devoted adherent of Rámcharan, by abandoning her husband and offspring, and by conforming strictly to chastity and other statutes Females are forbidden under pain of chastisement and excommunication, to approach places of worship after dusk, as they form the residence of the priesthood it is considered prudent to guard them from temptation, although they are supposed to have acquired absolute controul over the passions and all unlawful desires, before they are admitted to the sect The sexes sit apart in the temples, and never sing together

In regard of the injunction to sleep little, and to follow habits of industry, they say there is enough of sleep in the grave, life is evanescent, and of too much value to be passed in repose, and by wasting the precious hours in slumber, man degrades himself to an equality with the brute Their aliment is poor, and taken sparingly, because abstinence induces watchfulness, while a surfeit of food and sleep make the soul heavy Priests reside away from the habitations of man, as the turmoil of cities would interrupt their meditations, but they are at the same time commanded to live together, to correct the foibles and relieve the gloom of each other " A solitary lamp," added the chief, " however brilliant, casteth a shadow beneath it—place another lamp in the apartment, and the darkness of both is dissipated "

The priest changes his name on admission to the order, to denote he enters on a new state of life, and the hair of his face and head (with exception to a small tuft on the crown) is shaved close , there are several barbers on the establishment, whose business it is to perform this office, they are wealthy, and receive occasionally valuable presents I heard of a Charan, who, in a fit of liberality, presented five hundred rupees to one of them The only covering worn by the Sádh is a cotton cloth, of coarse texture, seven feet and a half long, with a small piece for a waistband, and another for a percolater, water being always strained before it is used for culinary or other purposes, to guard

against the destruction of animalculæ The sheet is coloured with Gírú, a kind of red-ochre, emblematical of humility, they add a second in the winter season, and sometimes a third, when if warmth be not obtained, they throw off all clothing, to mortify feeling, disdaining, as they express it, to be overcome by the wintry elements. This sheet is brought over the head, and forms its only covering, but woollen cloth of similar dimensions is sometimes substituted for cotton in the cold months They all go bare-footed, and never ride on any description of animal or wheeled conveyance

A perpendicular mark of white clay, called Sirí, imprinted on the forehead, is a distinguishing symbol of the sect, denoting belief in the unity of God, and they have a rosary of small beads used in prayer about their necks Metal utensils are proscribed The Sádh drink from wooden goblets, and eat off stone, china, and earthen-ware, the latter, it is well known, are forbidden to orthodox Hindus They abstain from animal food, and what is singular, considering the extraordinary anxiety shewn to provide for the safety of insects, partake of nothing unsubdued by fire, fruits and vegetables not excepted They have no objection to touch the element, but refrain from preparing their own food thus it should seem, however fearful themselves, to incur the deadly sin of robbing a creature of life, they do not view the act in others with the same antipathy Even the most loathsome vermin are held sacred, whenever a Rámsanehí kindles a light, he covers it with a shade, and lamps are excluded from the temples from an apprehension they may lure insects to destruction Influenced by a similar feeling, the priests look on the ground before they walk, and never move out of doors, except on very urgent business, during four months of the year, or from the middle of Asarh* to the middle of Kartik The insect population being most active in the wet months, they fear to crush them under foot in passing through the rank vegetation, and should they be on a journey, halt without reference to situation, till the season is over

The total number of Sádh, so far as I could ascertain from inquiry in various quarters, does not exceed eight hundred No census has ever been taken they are dispersed over the country frequently at a great distance from Sháhpura, and never attend the festival of Phúl Dol together, so it is obviously impossible to arrive at a correct estimate The number at Sháhpura constantly varies, and about a hundred are sometimes met with in the temple at one time, the visitors who come to make their respects to the superior, to consult him and receive his blessing, usually remain for three days, and give place to others

* July, August, September, and October.

The priests may be considered wealthy, their few wants considered, and the laity subscribe liberally to their support Two of them visit the town of Sháhpura daily, to collect ready-dressed victuals from lay members of the community and Hindus of the better class, who contribute readily to fill their wallets They do not accept food from other sects, and the custom is observed, it should seem, as an act of humility, certainly not from an avaricious motive The fraternity make their evening repast off these offerings, and purchase materials for a simple breakfast, the only other meal, out of their own coffers.

Rámcharan had twelve pupils or disciples, called Chèla, whom he selected from the priesthood, filling up vacancies as they occurred, from the most virtuous of the elders, and this custom is continued by his successors They are called the "Baruh Thumbe ke Sadh," or disciples of the twelve pillars The middle hall of the temple where the Mahant sits, and prayers are read, being supported by that number of columns, three on a side, beneath which the disciples range themselves The openings between the columns are hung with cotton cloths, dyed with Girú, let down at night to exclude the air, and here the priests take their repose, the pavement of the hall is elevated above the outer terrace, and is the only part of the structure laid with mats, and dry grass is spread upon the terrace in the winter, the only time of year such a luxury is permitted, to serve as a cushion to the laity and visiters who are not admitted inside

The twelve do not reside permanently at Sháhpura, but four or five are always found there at one time One of them denominated Kotwal acts as steward of the grain and medicines deposited in the temple, and distributes a daily allowance of food to the inmates, nothing can be taken from the store without the Mahant's order, it is also the duty of the Kotwal to summon the priests to midnight prayer

Another of the body called Kapradár—keeper of the wardrobe—has charge of various kinds of clothes presented by the laity and strangers for the use of the brotherhood these include coarse cottons, blankets, and other woollens, but no coloured or rich stuffs are accepted The cloths supply the Sádh with raiment, and when cast off, are bestowed in charity, and some of the brotherhood are constantly employed preparing dresses for the poor The same individual keeps the vessels of the refectory

A third fills the office of censor, and maintains strict watch over the manners and moral conduct of the fraternity. A fourth teaches the priesthood to read, and a fifth instructs them in writing

Another is appointed to teach reading and writing to men of all persuasions who apply to him, while a seventh, usually selected for his

age and saturnine temper, instructs females in the same acquirements

The remaining five, with three disciples chosen indifferently from among those mentioned above, form a council of eight, appointed by the Mahant, to investigate into offences and infringements of the rules of the order The elder ecclesiastics have usually several disciples, who are byrágís, and in event of the absence of a member filling an office in the establishment at Sháhpura, a trust-worthy follower officiates as his deputy

Of the Priests called Bedehí and Mohaní

Bedehí, compounded of two words *be*, without, and *deh*, body, implies that the persons so denominated are dead to all corporeal feeling, and accordingly they go stark naked

The Mohaní, as the term indicates, feign insensibility and unconsciousness of all that passes around them Priests who have not sufficient command over their tongues become "Mohaní," not for life, but a period of years, and when they have brought their hasty tempers into complete subjection, they resume the use of speech They repeat "Rám, Rám," the watch-word of the sect, in acknowledgment of a salutation, and permit themselves to converse and answer questions on subjects strictly confined to their religion With exception to the particulars noted, the Bedehi and Mohani differ in no respect from the other priests

The hungry, be their creed what it may, are never sent away empty from the temple, and the ragged are provided with suitable raiment During Chyt, Bysakh, and Jeth, or from the middle of March to the middle of June, the hottest period of the year, the mahant stations a brahman*, with water-carriers at a distance of two miles from Sháhpura, on the different roads leading to the city, to minister to the wants of the thirsty traveller And all the cattle of the town receive a certain allowance of fodder and water during the above season from the same bountiful source

It will be seen, that the doctrine of the Rámsanèhís inculcates the mortification of the passions, with entire abstraction from the world, and the renunciation of all its pleasures and enjoyments The two sins held in most abhorrence are incontinence and avarice, and are never forgiven The dress of the priesthood is kept scrupulously neat and clean, and changed, I believe, every day, or second day, and

* It is barely necessary to mention, that a brahman is chosen, because Hindus of inferior caste, and I might include foreigners, are gratified to accept the beverage from his hand, while they might hesitate to take it from a man of low tribe.

their modest quaker-like demeanour, as they respond "Rám, Rám" to the salutation of the traveller, prepossesses him strongly in their favour.

Of the Laity

The laity, known by the general name of girhist, are at liberty at any time to enter the hierarchy, and the office of mahant is open to them They are particularly enjoined to speak the truth, to be constant in their affections, and just and honest in their dealings I omitted to inquire, if females are forbidden to become Satí, but rather think they are not, as two of the wives of the late Rájá of Sháhpura, who was a Rámsanèhí, burnt in 1825 It might be that the force of ancient custom was in this case too strong to be overcome, and the noble often indulge licenses which would not be countenanced in the peasant

The girhist celebrate their weddings with none of the pomp and rejoicing usual with the brahmanical Hindus, but conduct the ceremonial in a quiet unobtrusive manner Like the byrágís, they are forbidden to mourn for the dead, as an act answering no purpose, since death is the doom of all, and also because it implies a want of resignation to the divine will. They burn their dead, and chaunt Sabd over a corpse

Neither priests nor laymen observe Tíja, Dashahra, Dewálí, Holí, nor any other Hindu festival, that I am aware of, they keep a strict fast from sun-set until sun-rise, nor even when sick, are they permitted to take any nourishment, but medicine during those hours

The laity at Sháhpura are in number about two hundred, of which perhaps a hundred and twenty are of the male sex, and they are interdicted turning Bedehí and Mohaní, as attention to the rules of those orders are incompatible with the discharge of temporal duties.

Converts

The Rámsanèhís are composed of all castes of Hindus, and although no members of other sects have been converted, nor so far as I could learn, have any applied for admission to the order, the tenets are characterised by so much of liberality that I see nothing to oppose it. Both Christians and Muhammadans are freely admitted to their places of worship, all that is required of them, being to remove their shoes · but in the matter of diet, the force of prejudice and ancient custom are so strong among the sectaries, that I doubt if they would allow apostates of any other faith to eat with them

Converts can be admitted to the society by the superior alone in the temple at Sháhpura, and they are conducted for this purpose by the priests from different parts of India The superior makes the novice over on his arrival to the twelve Sádh of the pillars, who are

directed to examine him on the soundness of his belief, and to make him thoroughly conversant with the tenets on which their religion is founded Should their report be favourable, the name of the convert is changed, supposing he enter the hierarchy, but not otherwise, and he is received into the order, after undergoing a novitiate of forty days.

Some brahmans have enrolled themselves, but converts have been made principally from the mahèsrí* and agarval tribes of baneas. There are no certain accounts of the number of Rámsanèhís dispersed over Western India, they abound chiefly in Rajwára and Gujarát, are met with in the neighbourhood of most large cities and towns, such as Bombay, Surat, Hydrabad, Punah, and Ahmedabad, and there are some at Benáres.

When we consider the strict rules by which the ecclesiastics are bound, and the hardships by which they are expected to subdue the body, it is not surprising their number should augment but slowly, but the superior assured me, they had much increased of late years through the quiet which Western India enjoys under British protection.

Worship.

Worship is performed three times a day, but the laity, busied in their worldly avocations, do not all go at one hour, though once seated, they remain in the temple till the service is over The book of prayer is always read aloud by a layman, who makes a pause at the end of every second or third verse, to enable the mahant, and in other tabernacles, a priest of superior acumen, to expound and comment on the texts in the dialect of the country Not more than six or seven Sabd are read in a day, and continued concordant to order, until the whole have been explained to the congregation, thus two years are frequently occupied in going through the sacred writings.

The Sádh rise at midnight, and continue at their devotions until the first watch of the morning (8 A. M), when the laity attend for a couple of hours, and the service concludes with a couple of Sabd or songs of praise chaunted by females Mid-day prayer commences at one or two P M., and lasts for several hours, and evening service, at which only men are present, begins at dusk, and terminates in an hour, during which time, two arthi or hymns, are sung. As observed in another place, men and women never sing together, and they sit apart in the temples, and when the priests are alone, they pass hours together in silent abstraction, and at other times, count their beads, repeating at intervals the holy name of Rám

* Mahèsrí from Mahèsvar, a name of Mahádèva. both tribes worship the god under different energies.

Festival of Phúl Dol

Annually in the month Phálgún*, a festival called Phúl-dol, is observed at Sháhpura, attended by as many of the priests and laity as are within reasonable distance the Sádh rarely allow two seasons to pass in succession without attending The five or six last days in Phálgún are, strictly speaking, the festival, but people begin to assemble upwards of a month earlier from distant parts of India

The name of the festival, signifying "Flowers swinging" is borrowed I understand from one of the eighteen Puráns called Srímath Bhágavat, which contains an account of Krishna, and is intended more particularly for the instruction of his followers A festival is annually observed in Bengal, and probably in other parts of Hindustan, by the worshippers of the god on the full moon of Chyt or Bysakh, when he is encircled with wreaths of flowers, placed in a sort of cradle, and swung by his votaries I obtained no satisfactory reason why the Rámsanèhís, who do not observe the rite alluded to, should give the name of Phúl-dol to their great annual meeting

Two or three Sádh reside in every village of consideration, and from eight to twelve, and upwards, in each city and large town, according to its populousness they are always relieved at the Phúl-dol, a regulation framed by DULHA RÁM, the third mahant, to prevent their forming friendships and improper connections with the inhabitants on no account are they permitted to remain for two successive years at one place

Each of the princes of Udípur, Jodhpur, Jypur, Kotah, Búndí and of some of the smaller Rajput states, although orthodox Hindus, to evince their respect for the Rámsanèhís, send from eight to twelve hundred rupees to Sháhpura on the anniversary of Phúl-dol, to furnish forth a day's entertainment of sweetmeats to the sect

Besides the Rám-dwára or temple outside Sháhpura, there is another religious edifice within the city wall, called Rám-meri, which has an establishment of five brahman cooks, five females to grind meal, and a similar number of water-carriers for the service of the brotherhood. Hither the high priest resorts with a few of the most pious of the Sádh, on the last day of each month, to keep a solemn vigil during the night, in commemoration of the death of RÁMCHARAN Prayers are offered up, and the holy writings expounded, and respectable people of all persuasions are admitted to the building The priests distribute sweetmeats and food collected in the town to the congregation, reserving their own share till morning.

Punishment

When any member of the community infringes a rule, he is brought to Sháhpura, at the festival of Phúl-dol, by some one of the bvrágís, who, as already mentioned, are dispersed over the country to watch the conduct of the sect He is not permitted to eat with the brotherhood, nor to enter the holy edifice, but seated at a little distance off under a certain tamarind tree, where his food is sent to him on a platter of dhák* leaves The offence with which he is charged is investigated by the council of eight, who make a report on it to the high priest. If found guilty, the culprit is deprived of his rosary, a barber of the establishment shaves the top-knot off his head, and he is ejected from the community What is stated above applies to grievous offences. Slight infringements of order are investigated at all seasons, and sometimes when the culprit happens to be a long distance off, the priest stationed at the place takes a deposition of the case, and transmits it to the mahant, when if considered fit, he excommunicates the culprit, without ordering him to Sháhpura ' It will be seen, the superior and council are a check upon each other, and they must coincide in opinion before a sentence can be carried into effect

Religious Edifices.

Temples of the Rámsanèhís are known under the name of Rámdwára, or the gate of God Among other places in Rajwára, where they are met with, may be enumerated Jypur, Jodphur, Mertha, Nagor, Udypur, Chittor, Bhílwára, Tonk, Búndí, and Kotah. The one at Sháhpura is by a great deal the handsomest, and distinguished for the richness and magnificence of its architecture it is built of rock quarried at Katí, a distance of twenty-four miles, and coated with brilliant white chunam, formed of the same stone, reduced to powder and mixed with milk and other ingredients, which adapt it to receive a high polish The entrance porch faces the east, and is very lofty, with an arched balcony above, and like other parts of the buildings, neatly carved From the centre of the pile, a handsome pavilion, with open arches, rises far above the other towers, and in a vault beneath, the corpse of the founder of the sect was reduced to ashes. Between the vault and pavilion, there is an equilateral apartment, supported on twelve pillars, connected by scolloped arches · this was the favourite abode of RAMCHARAN, and here the mahant daily takes his seat, to expound the doctrines of the faith, and the congregation assemble on the terrace without, for morning and evening prayer.

On the south face of the temple, but quite separate from it, stands a range of seven domes, to which you ascend by steps, six of them re-

* Butea frondosa.

pose on twelve pillars, and correspond exactly in their proportions: three are built over the ashes of the Spiritual Fathers, who succeeded the founder, and the others cover a similar number of venerated priests of the community The central or seventh dome has only five columns, and is much smaller than the rest, it marks the spot where the remain of a female named SARU'P, a pious disciple of RÁMCHARAN, were burnt, and the domes, with those of the temple, are painted inside and out in ornaments of vivid colours The Rám-dwára was built at different periods, when funds were available, and is said to have cost about eighty thousand rupees it is kept remarkably clean, and presents a unique and handsome appearance, essentially differing in design from all Hindu edifices I have seen. On a level with the vault are apartments for the priests and members of the sect, who resort to Sháhpura at the festival of Phul-dol, and here are also the stores of linen and blankets belonging to the fraternity

Behind the Rám-dwára repose the ashes of the ancient Rájas of Sháhpura, each in a distinct shrine BHI'M SINGH, grandsire of the reigning chief, was the patron of RÁMCHARAN, and was the first of his family who embraced the new doctrines The late Rájá died at Udypur in 1825, but his turban was transmitted to Sháhpura, and with it two of his wives performed Satí

**Selected Translations from the Religious Writings of the Rámsanèhís*

1 —The name of RA'MA is the real seed, in which all things are contained for he is the source of the three qualities (of goodness, passion, and darkness), of the fourteen regions (of Hindu cosmogony), of the twenty-four (incarnations), the three hundred and thirty millions (of Hindu deities), and the three (principal Gods, viz BRAHMA, VISHNU, and MAHESWARA), who should be adored, and who not? RA'MCHARAN says, the whole universe sprung from that only seed, as leaves shoot forth and fall off in abundance from the same tree

2 —The person who adores the all-pervading RA'MA, and turns his back upon the other gods, who visits his guru with bare feet, and stretches forth his liberal hand, who has renounced the world, neither uses harsh language nor jokes, and seeks not any pleasure, who giving up all considerations on profit and loss, resigns himself to the will of HARI†, who is not addicted to gaming, stealing, avarice, lying, and hypocrisy, who does not taste bhang‡, tobacco, opium,

* I have to acknowledge my obligations to Bábu KA'SI PRASHA'D GHOS of Calcutta, for his courtesy in assisting me with a translation of these papers. he purposely rendered it as literal as possible, and I am not sure if it would not have been better had I left it in that form

† A name of VISHNU, but employed here and elsewhere along with RA'MA, to express God in an abstracted sense, the frequent mention of these two as objects of worship, is owing to the doctrine of the Rámsanèhís being mixed up with the tenets, and these verses being selections from the books, of other Hindu sects.

‡ An intoxicating potion, prepared from the hemp plant (Canabis Sativa).

akhaz and wine, who drinks water after straining it, and looks before he walks, is the true Rámsanèhí who hath attained his purpose.

3 — RA'MA is the sea of happiness and destroyer of misery—abandon him not, O RA'MCHARAN, but be constant in his worship

Song in the Pánjábí language

The faqír who is enamoured of the beauty of the All-Merciful is drowsy throughout the eight prahars*, because he is fully intoxicated with his love He (or his spirit) has come from an inaccessible region, and entered the corporeal frame, and after having witnessed all the troubles of the world will return to that region As long as He (or the soul) occupies the serai (*i e* mansion of the body), he gives its proper rent (*i e* discharges the duties of humanity) and abandoning his desires, resigns himself to the will of his deity He wanders about at ease, forms no attachments, seeks only his beloved (God), and bestows a portion (of bread or any other thing) upon all who need it He points out the path to heaven, rescues others from perdition, conforms to the duties of this world with his faith, and is influenced by no private motive RA'MCHARAN says, that few individuals have followed the example of such a faqír, who gives no thought to the world, but is content with his present condition

2nd Song in the Panjábí language

The faqír whose heart is firm (in God) is above all amírs†, for he is a true pír‡ Knowing that the body is a hell, he places not his affections on the world, and keeps aloof from it by frequently meditating on the Alif of Allah Restraining his heart from going astray, he has laid it at the feet of the Almighty, and remembers him at dawn, in the morning, at noon-time, and evening He absolves himself in the water of faith, and tells the beads of fatwa§ His cave is in the sky (*i e* abstraction of mind), where he sits in contemplation. RA'MCHARAN says, that people do not understand the secret motive of such a faqír, which is to obtain the indescribable Being|| in his body, whom he always serves

4 —The darvèsh is always happy who is free from desire Either remain at one place, or roam about in the four quarters (of the earth) roam about in the four quarters, and labour for the salvation of your soul Be awake or asleep, but entertain no selfish motive Let your hair grow as long as was that of *Sahaka* and others, or shave your head bare for he who is free from desire is always happy Practise benevolence, and make your heart as pure and soft as wax, and look down upon your feet Be patient, speak the truth, and dance without a mistake (*i e* discharge your duties properly) Having once placed the hand of your spiritual guide upon your head, never be so shameless as to undress yourself (*i e* refrain from all intercourse with women) He has subdued his mind and heart, and taken his seat in perseverance RA'MCHARAN says, this is the height of devotion, as a person who attains it has cooled (subdued) his Pir (senses), and never covets the society of women He is not given to intoxication, love, or adultery, but is always engaged in contemplation, and from leading a solitary life, his mind is free from all affection.

* An eighth part of the twenty-four hours

† A chief or grandee

‡ A saint, or spiritual father

§ Divine knowledge

|| The human soul is believed to be a portion of the Supreme spirit, and consequently worshipped as such

5 —If having fed yourself through the charity of mankind you sleep at ease, with outstretched limbs, and fail to offer worship to Harí, the punishments of Yama* will not be mitigated do not take thy meals without adoring the lord supporter Ra'ma, but abandoning thy habits of idleness, worship him day and night Abandon thy habits of idleness, and walk not without the fear of God If you neglect to follow (this advice), you are a hypocrite, and shall be doomed to pass through the eighty-four (transmigrations) As a powerful creditor collects his dues from his weak debtors by severe beating, so shall you be punished if you take your food without adoring Ra'ma

6 —The ignorant person who commits a sin becomes free from it by the acquisition of knowledge but the man of knowledge, who is guilty of vice, is like a newly varnished pot from which the dust (should any fall upon it) never goes off He is like a newly varnished pot from which the dust never goes off, or like a blue stain (upon linen) A sin committed at a holy place of pilgrimage is like a waking dream As the stupid man who mistakes his way in the day-time can never discover the true path at night, so the person who possessed of knowledge perpetrates a sin can never emancipate himself from it

7 —He is a real faqír who makes the stone his bed, whose tent is the sky, whose arms are his pillows, and who eats his food from earthen vessels he is the master of the four quarters, and is not regarded as low The prince and the peasant fall prostrate at his feet, and he subsists by begging

8 —You must die one day, whether you live in the city or the wilderness† Some (*i e* the wicked) are taken bound in chains, while others (*i e* the good) are summoned (by death) They are sent for who have renounced the world, who have none to weep (for them), and who have always taken the name 'Ra'ma' Ra'mcharan says, the good abandon their homes, because they know that they must one day perish, whether they inhabit the city or the wilds

We should mourn over the corpses of the dead, if weeping could restore them to life* If doctors could save mankind, then none of the wealthy would die, but it is not in the power of any to escape death Enquire of this from place to place, and weigh it thoroughly in your mind Life and death were created by the Lord, who can do whatsoever he willeth We should mourn over the corpses of the dead, if they could be restored to life by weeping You blame Ra'ma, and cry — "Oh Ra'ma, what have you done, who will support my family, and who will superintend my household works? What have you done, Oh Ra'ma? you have as it were sunk the vessel in the middle of the stream" You know not how long you may live, and Ra'mcharan declares without this knowledge you fall off from Hari', because you blame Ra'ma, and exclaim, 'Oh Ra'ma, what have you done?"

‡9 —You may have followers, eloquence, and fame, without using any exertion to obtain them, you cannot therefore fathom the will of Ra'ma I look not for means, every thing comes to pass of its own accord The will of Harí is powerful, who can revert it? Whatever happens is accomplished by Ra'ma, for I am incapable of performing any thing, it is the very height of folly

* The Indian Pluto, and king of Patal or hell.

† Meaning the souls of those persons.

‡ The figures correspond with the number of paragraphs in the MS. selections

2nd Leaf

1 —Man clad in scented garments walks forth with conceited strides, but while all in his outward appearance is fair, his inside is corrupt. He views his features in the glass, and is puffed up with pride, but is ignorant, that his body will suffer dissolution at last, and that not even the fair skin (which now) covers the filthiness within him, will remain

2 —Woman and the objects (met with in this world) persuade the heart to terrestrial enjoyments, and often level the most exalted mind, such is their nature, therefore abandon them, Oh RA'MCHARAN! You can obtain nothing, Oh RA'MCHARAN, in this world without money, but to an ascetic money is nothing To an ascetic money is as worthless as a kowri shell, it destroys devotion, knowledge, and ascetism, it ruins devotion, knowledge, and ascetism, for it increases the appetites and eats up (*i e* destroys) the integrity of those three qualities Like achavan*, it absorbs every virtue, wherefore an ascetic sets no value upon money

3 —The body is the shrine of which the all-perfect RA'MA is the god, the anxiety (to see him) is the artit†, and to remember him is true devotion No worship is better than the constant remembrance of him, and no offering is more proper than resignation Leave your heart's individuality (or pride), and God will listen to your adoration He is quite content, Oh RA'MCHARAN, who has understood this secret truth, that the body is the shrine of which the all-perfect RA'MA is the god Destroying your works (*i e* abandoning the merit of them hereafter), enjoy the sweets of humility, contentment, charity, and peace Speak the truth, curb your inclination and your tongue, repeat the name (RA'MA) inwardly, and acquire divine knowledge Give up your desires, sit down contented, retire to the woods, and immerse yourself in the pleasant ocean (of contemplation) The faqir who has drunk of the love (of God) constantly meditates on him, his aspirations and respirations are not in vain, for whether awake or asleep, he never forgets his God He is merciful, subdues his anger, and neither indulges in avarice or delusion he worships none but RA'MA, and cares not if the remaining three hundred and thirty millions of gods are displeased with him.

4 —The ascetic is always awake, and meditates himself, and makes others meditate (on God) Whenever slumber comes upon him, he sings a hymn —whenever he lights a lamp, he thinks of the safety of animals, and covers it either with abhra or cloth, by this means, the followers (of this doctrine) never incur guilt, but attain virtue CHÍTAN says, that many have obtained salvation by avoiding desire, and disclaiming all merit in their works.

5 —What will you achieve in lying, oh KABÍR? —lying will bring on sleep while death is near the pillow, like the bridegroom at the turan. What will you achieve in sleeping, oh KABÍR?—awake and meditate upon Maráni‡, for you must sleep one day with your long legs outstretched What will you accomplish in sleeping, oh KABÍR, strive to keep yourself awake, for this life is as valuable as a diamond or ruby, and should be given up to (meditation on) the Lord. What

* The ceremony of sipping water before eating.

† The ceremony of turning a light about the face of an idol.

‡ A name of Krishna.

will you accomplish in lying, oh KABÍR? Arise and sorrow for nothing—how can he whose abode is in the grave (i e who reflects on the evanescence of this life) —(how can he) sleep in quiet?

6 —By adoring RA'MA, the state of Brahm is attained, this has been fully proved by his votaries Let, therefore, all the Rámsanèhís meet together, and raise a hallelujah to RA'MA.

7—Should the devotee go forth in the autumn, and trampling upon the numerous animals which are born at that season, occasion their death, he forfeits his innocence, inasmuch as he destroys the feelings of his heart, and thereby commits sin at every instant TULSI says, this is not devotion either in mind, deed, or speech, but the devotee who is careful to remain quietly at home observes the rules of virtue

(These verses are dated Tuesday, the 6th day of *Chait*, in the *Samvat* year 1855 (A D 1798), the year of RÁMCHARAN's decease)

II —*Journal of a Tour through the Island of Rambree, with a Geological Sketch of the Country, and Brief Account of the Customs, &c of its Inhabitants By Lieut* WM FOLEY *With a map, Plate* IV.

(Continued from page 39)

January 15*th* —It had been my intention to cross over *Jeeka*, and proceed from thence towards the town of *Rambree*, through the *Northern Hong** My host of *Oogah*, and the guides he had furnished me with, were, however, so fearful of accident, and unwilling that I should incur any risk by passing over this wild and almost inaccessible part of the island, that I abandoned the design, and consented to be taken along the sea-shore to the south-west of the mountain, with the view of putting up at *Singhunnéthe*, a village in the *Southern Hong* I afterwards discovered that had the day been any other than what it was, (Wednesday,) I might have succeeded in inducing the guides to take me over Mount *Jeeka* The *Mughs* pay a superstitious deference to what are termed the fortunate and unlucky days for any undertaking. Wednesday (*Boduh-hoo*), happened to be among the latter number *Pyatho* (January), is held to be a very unfavourable season for building a house, and marriages are never celebrated in the months† *Wajho, Wagoung, Todelin* and *Tsadinkyot* I left *Oogah* by the sea-beach, and passing a few sandstone rocks, with an island resembling the *knot* in appearance and structure, found myself at the foot of *Jeeka* Its elevation above the sea is probably as much as 3000 feet, the very abrupt manner in which it rises above the range with which it is connected, gives it, at a dis-

* *Hong* is one of the circles in the island, there are two *Hongs*, (*North* and *South*)

† July, August, September and October.

tance, the aspect of an isolated hill A dense forest, with little variety of shade, covers the mountain from top to bottom. The ground on the summit is said to be level and clear, but it remains uncultivated, as no *Mugh* will fix his habitation in a spot which not only abounds with wild beasts*, but is, in his opinion, the abode of fairies, and evil spirits, equally destructive with the former. I observed the prints of elephants' and tigers' feet in several places on the road, and from the diminutive size of some of the prints, it was evident that these animals had been accompanied by their young The guides remarked that a herd of elephants may frequently be seen during the evening feeding upon the long grass and underwood at the foot of the mountain By their account, the elephants were particularly troublesome in the months of *October* and *November*, (when the rice crops are becoming ripe,) at which time they descend into the plains and do a great deal of mischief Although elephants are continually shot in the Sandoway district for their teeth, no attempt has yet been made to catch or destroy the elephants on Mount *Jeeka* and its neighbourhood, from the absurd opinion entertained by the inhabitants, that they are not only invulnerable, but are endowed with such superior sagacity as to render all endeavours to ensnare them futile

I had hoped to find in *Jeeka* some departure from what had hitherto been the prevailing character of the formations on this side of the island. The almost impervious nature of the jungle at the base of the mountain, and the great danger that I should have incurred in endeavouring to ascend the hill on a quarter hitherto undisturbed by man, obliged me to confine my observations to the ground over which my path lay, and there I could find no one geological feature distinct from what I had already met with A brown ferruginous sandstone regularly stratified, with an inclination to the south-west, was the only rock visible on the surface, whether the sandstone appears on the summit of the mountain, or is succeeded by some other rock, I was unable to ascertain, but so anxious am I to satisfy myself on this point, and to view the *Fairy Land* above, that I shall take an early opportunity of renewing my visit to *Jeeka* At a little distance beyond the mountain, and at the foot of a small range bounded by the sea, stratification of the sandstone is beautifully distinct The several layers rise from under each other for a considerable extent, exhibiting a similarity of appearance with the sandstone that covers the lignite coal of *Phooringooé*, an island to the east of *Combermere Bay*.

* Among these, are the *elephant*, the *tiger*, and the *bison*. I have in my possession a horn of the last mentioned animal, which measures 1½ feet in circumference. I only wait for an opportunity to present it to the Society.

Turning to the eastward over a few small hills intersected by ravines and covered with jungle, the road leads to *Rambreengheh**, *Kyout-nemo* and *Singhunnethe* I observed some very beautiful creepers as I passed over these hills The leaves, which were very small and delicate, were of a pink colour, and at a distance had the appearance of clusters of lilac blossoms Of the animal tribe I saw nothing deserving of notice, save a solitary *Ghi* and a flying squirrel, (termed *Tshen* by the *Mughs*) It is a very handsome creature, and larger than the squirrel of Europe. The head, back, and tail are covered with a rich coat of dark-brown fur, the under part of the chin, neck, belly and legs being of a bright yellow colour The skin about the sides and forelegs is loose, and capable of being so much extended, that in making its prodigious spring from tree to tree it appears rather to fly than leap It is said to be very destructive to gardens, if taken young it may be rendered perfectly tame

Entering upon the plain, the village of *Rambreengheh*, with its surrounding hills covered with gardens of plantain trees, meets the traveller's view A few well built *Kioums* are seen resting upon the side of these hills, which are, in some instances, crowned with glittering temples built over the ashes of the departed priests The village is large and remarkably neat The soil in its vicinity, a rich yellow clay, taken up with plots of indigo, tobacco, and pepper plants Bricks manufactured from this clay, and reserved for the erection of temples, were piled up in several places outside the village Beyond *Rambreengheh*, and to the right of my path, lay the large village of *Kyouk-nemo*†, almost concealed from view by the forest of plantain trees with which it is surrounded *Kyouk-nemo* is accessible to the sea by a large creek, and was at one time much infested with dacoits, through the exertions of the magistrate at *Rambree* the reign of terror is now at an end, and the village is apparently in a thriving condition Approaching the creek, which is at some little distance from *Kyouk-nemo*, I was fortunate in finding two *Godoohs* with their small boats at anchor, otherwise as there is no ferry at this place, I must have gone round much out of my way, the merchants kindly consented to take me and my followers over for a small consideration, and the mahouts prepared to swim their elephants across The shore on the opposite side consisted of a deep clay, which made the progress of the elephants after landing a matter of considerable difficulty So heavy was the soil, that I was unable to make my way through it unassisted by the boatmen, who in

* *Little Rambree*: it resembles not a little the town of *Rambree*, and thence its name

† *Red stones* I saw none of them in my path

their turn depended for support upon the young mangroves and other marine plants that grew upon it After some little exertion both elephants and men succeeded in reaching the *Terra Firma* of a stubble field I here met the *Soogree* of the district, who had in some way been apprized of my arrival, and came out for the purpose of conducting me to the village of *Singhunnethe* It was at no great distance from the creek, so that I was soon there, and in possession of the house that had been allotted for my accommodation *Singhunnethe*, as was the case with all the villages that I had seen on the southern side of the island, is surrounded with plantain trees, which not only afford a wholesome and favourite article of food, but are in constant request for the production of a solution of potash* used in the preparation of dyes, more especially in those derived from indigo The mode in which the potash is obtained from the plantain trees is similar to that followed in other parts of the world in its extraction from the different vegetable substances that produce it, with this exception, that it is held in solution by the water, which is not suffered to evaporate. The stem and branches of the plantain tree are divested of the outer rind, and then broken up into small pieces, which are laid upon the fire and slowly consumed, the ashes are lixiviated with water which is strained off, and reserved for mixture with the dyes In front of the *Soogree*'s house, and in the centre of the village, a nice tank had been dug, the only one I had hitherto met with, tanks being seldom seen except in the neighbourhood of large towns The houses were neat and built with more attention to comfort and order than is general in the villages of *Rambree* I remarked a hideous representation of the human countenance drawn with lime upon several of the door-posts. I was told, it is put up to deter the *demon of sickness* from entering the dwelling Much sickness had been experienced of late, and this was one of the many absurd customs resorted to, with the view of ridding the neighbourhood of its presence. I further learned that when any one of a family has been a long time sick, and recovery appears doubtful, the inmates of the house assemble and make a tremendous noise with drums and gongs, at the same time beating the roof and walls with sticks to expel the evil spirit who is supposed to have taken possession of the dwelling One door alone is left open for his escape, all the others being closed While this is going on a *Phoon-*

* During the time that Government held the monopoly of salt in Arracan, the plantain trees frequently afforded to the poor a substitute for the common sea salt So strictly were the Government rights protected, that a poor woman was actually prosecuted in one of the courts for collecting a little sea salt off a rock on which it had been deposited on the evaporation of the water left by the tide!

gree stands upon the road, opposite to the house, reading a portion of the *Khubbo wah*, a book that is held in particular veneration A further ceremony is sometimes observed by the invalid as an additional security for a complete restoration to health , but it is only performed by those who feel themselves, as it is termed, *possessed*, and called to the exercise of the duty required of them, as a propitiatory sacrifice to the malignant spirit from whose ill will their sickness is supposed to originate. This ceremony, which is called *Náth-Kadéy*, very much reminds me of the antics played by the dancing Dervises of old A brass dish, or any piece of metal highly burnished, is put up in a frame, and in front of this are laid offerings of fruit, flowers, and sweetmeats. When every thing has been properly arranged, the invalid commences dancing, throwing the body into the most ludicrous attitudes, and pretending to see the object of worship reflected upon the plate of metal makes still greater exertions, until the limbs are overpowered, and the dancer sinks exhausted upon the ground Should the sick person be so weak as to render such assistance necessary, he, (or she,) is supported by a friend placed on each side during the whole of the ceremony It is by no means improbable that this violent exertion has on many occasions proved highly beneficial, realizing the most sanguine expectations of the people In cases of ague or rheumatism, where a profuse perspiration, and a more general circulation of the blood throughout the human frame is required, there is perhaps no other mode of treatment more likely to produce the desired effect, and could some proper substitute be found for a piece of metal, the *Náth-Kadéy* might be introduced with advantage into our own hospitals

Superstition, the companion of ignorance, is a part and parcel of this benighted land Was I to credit all that is said of ghosts and goblins, it would appear wonderful how this poor people contrived to pass through life unscathed Every tree or rock that has any singularity of appearance is said to be the nightly residence of some hobgoblin or departed spirit Yet with all this absurdity, some of the opinions held by the *Mughs* with regard to a future state of existence are by no means unfavourable to the cultivation of virtuous habits. It is their belief that there are many worlds, and that the earth has been subject to the several and repeated actions of fire and water (A fact that will not perhaps be disputed by some of the most celebrated geologists of the present day) The soul, they affirm, may pass through many stages of existence, either in this or another world , the nature of each change depending upon its moral condition For instance, a person of virtuous habits may aspire to a state of being far more elevated than that before enjoyed . if on the contrary, he shall have been of a

vicious disposition, his future state will be that of an evil spirit, or some grovelling and pernicious animal, such as a hog, toad, serpent, &c. A gentleman residing at *Rambree* has made me acquainted with a singular instance of the firm belief entertained by the *Mughs* in the transmigration of souls A young woman who lives at *Rambree*, in very good circumstances, declares that she is the mother of a man *much older than herself*, this she accounts for by saying, that he was *born to her during a former life*. She has a scar under the left ear produced, as she affirms, by a cut from her husband's *dhao*. She further states that she died of grief, in consequence of the partiality shewn by that cruel husband for his elder wife This story is not only credited by the neighbours, but its truth is assented to by the individual whom she calls her son The idea was probably produced, in the first instance, by the circumstance of her having been born with that curious mark under the ear, and afterwards confirmed by a dream or some other cause favouring the publicity of a tale that owes its popularity to a belief in the transmigration of souls.

January 16th —As the morning was very cold, I did not leave *Singhunnethe* before the sun had well risen, and the fog that hovered round the mountains had been somewhat dispelled The route at first lay over patches of rice-stubble, and then took a direction across several small ranges of hills, the most elevated of which was covered with a red iron clay similar to that on the "*red hill*" near the town of *Rambree* From the summit of this hill, I enjoyed a fine prospect of the channel that divides the eastern side of the island from the district of Sandoway The hills of *Lamoo* and *Kalynedong* rose on the opposite shore, and the distant mountains of *Yoomadong* were faintly visible amidst the clouds that surrounded them Descending this range I approached the village of *Saain-kyong*, celebrated for its lime The limestone is found at the foot of a high hill to the left of the road. This was the first limestone that I had seen on Rambree Island, and it is so concealed by the jungle, that had I not been previously made aware of its existence and inquired for its site, I should have proceeded on my journey unconscious that such a rock was in my neighbourhood From its appearance and more particularly from the rocks with which it is associated, I am inclined to class it with the "*upper fresh-water limestone*" found in tertiary formations, it is of a greyish white-colour, of a fine compact texture, but very brittle It occurs in several detached masses of a globular or columnar form, and although I made every possible search along the ravines in its neighbourhood, I could discover nothing that would indicate the slightest approach to a stratification; nor has this species of limestone been discovered in

any other part of the island There were no appearance of the fossil remains sometimes found in this rock, such as fresh-water shells, &c The limestone is split into several large fragments by means of fire, these are again broken into smaller pieces, and the whole conveyed in baskets to the lime kilns constructed on the banks of the *Saayre-kyong* creek, which at full tide has sufficient depth of water to admit of the approach of large boats The whole of the lime used in *Rambree* Island, either for architectural purposes, or for the preparation of the edible chunam, is obtained from this rock I was told that the lime, if taken in large quantities, was sold on the spot for 3½ maunds per rupee, and that there were generally from 100 to 200 maunds collected Crossing the creek at low water, I observed a few boulders of lias clay and calc spar imbedded in its banks Proceeding from thence by a neat *Kioum* and grove of mangoe trees, I arrived at *Seppo-towng*, a village situated at the foot of a high hill covered with forest trees, and diversified with a few spots of ground cleared for the cultivation of the plantain tree The tall *Giryuns*, with their white trunks divested of branches, were eminently conspicuous amidst their more graceful but probably less serviceable neighbours The *Giryun* yields the oil that bears its name, and is used for combustion as well as for admixture with paints, varnishes, &c (See Jour As Soc II 93)

These trees are very abundant upon the island, and are farmed by Government The mode of extracting the oil would appear to be as follows a deep notch is cut in the trunk of the tree by means of a *dhao* or other instrument, and to this fire is applied until the wood becomes heated, and oil is seen to exude upon the surface In the course of three or four days perhaps as much as a seer or a seer and a half of oil is collected within the cavity, and the tree will continue to afford a certain quantity of oil for five months or more, the collections being generally made every fifth day. When the oil has ceased to flow the tree is again cut in the same place, so that the whole of the wood which had been consumed or scorched is removed, fire is once more applied, and the oil collected as before. The notch has after repeated cuttings become so deep as would render any further attack upon the trunk, in this particular spot, destructive to the tree, in which case the *dhao* is laid upon another part of the trunk, and the same process observed as before mentioned The tree is said to yield oil at all seasons of the year, precautions being taken during the rains to exclude the water A large *Giryun* tree has been known to produce oil for 12 successive years, and as others are constantly supplying the place of those destroyed, there is no falling off in the amount of the several years' collections The oil is sold in *Rambree* at the

rate of two or three maunds per rupee, and the greater part of it bought for exportation.

Outside the village and facing the road was the large and comfortable dwelling of the *Soogree* of *Seppo towng*

He was an elder man, of respectable appearance, and bore a good character in his district, inviting me to pass the night under his roof, he set about making arrangements for my reception, and appeared desirous of contributing as much as possible to my comfort. I learned from his followers who were sitting around me in an attitude of careless and indolent attention, that the *Soogree* was a native of *Ava*, and had come to the province when very young He had since that time enjoyed several situations of emolument, and was a man of much consequence under the Burmah Government The change of rule had produced a change in his circumstances, and the net amount of percentage* he now realized during the year will not perhaps exceed 400 rupees, probably not one-tenth of what he was accustomed to receive during the period of Burmah sovereignty in Arracan Every thing around me but too plainly betrayed the existence of this decline of fortune The stockade that surrounded his compound was gradually giving way under the pressure of age, no new posts supplied the places of those that had fallen in, and his shrubbery and garden forcibly reminded me of that which is said to have once belonged to the "*Man of Ross*" The *Soogree*, said one of his dependents, cannot now afford to maintain that character for hospitality which once belonged to him, he cannot even provide for his most faithful followers, much less give bread to the stranger, he still continues to do so, however, as far as his means will permit, and there are none who approach his door without receiving a welcome to his board I respected the feeling that induced the expression of these sentiments, and thought more favourably of my host in consequence thereof

At the time that *Rambree* Island was subject to the Burmah rule, the *Soogrees* were invariably natives of the province, appointed and removed at pleasure by the Burmah *Méyowoon* or other local authority. The *Rooagongs* in like manner owed their nomination or dismissal to the *Soogree* There appears to have been no regular maintenance authorized for the support of these functionaries, and consequently no limit to their exactions and misappropriation of the public funds. The *Soogrees* were not only entrusted with the collection of the revenue, (derived from demands made at pleasure on those able to comply with them, and which might therefore be viewed in the light of a property

* A *Soogree* receives 15 per cent. on the collections, and a *Rooagong* four per cent.

tax,) but were in some instances permitted to pass decisions in civil suits and also in cases of petty theft and larceny · at a time when corruption was so openly allowed and practised, it may be easily supposed that much gain was derived from this permission, and that little reliance could be placed upon the justice of the decisions, or statements made by these *Soogrees* respecting the gross amount of revenue derived from their several districts One-fifth of the supposed produce was generally retained for the services of those delegated by authority to convey the royal mandates to the *Méyowoon*, and the remainder was devoured by that officer, the *Mroosoogree*, and others of the local Government The *Soogrees* and *Rooagongs* of districts having precisely secured to themselves such a share of the spoil as they could safely maintain without incurring the displeasure of the *Meyowoon*, the proceeds of other sources of revenue, especially that derived from the customs, (and which during the Burmah rule was in some instances considerable,) were remitted to the capital as the provision for the Prince Royal, to whose safe and auspicious keeping the Island of *Rambree* had been consigned

In the evening I took a walk towards the *Kioum*, and on my arrival there found the *Phoongrees* on the point of setting out to a small village in the neighbourhood, with the view of performing the rites of sepulture over a young woman and her child The former had died pregnant, and as is invariably the custom in such cases, the child had been removed from the womb, that it might be buried separately from its mother. It is further* deemed necessary that a river or creek should intervene between the graves of the parent and child, a precaution that was observed in the present instance. Desirous of witnessing a ceremony that was new to me, I asked leave to accompany the *Phoongrees* · a permission that was readily granted As we drew near to the house of the deceased, the corpse of the young woman, borne upon a litter adorned with gold and silver leaf, was brought upon the pathway, and preceded by the *Phoongrees*, was taken to the ground appointed for its home Immediately behind the bier clothed in their white dresses and with shaven crowns, were a group of *Mey-thee-layéng*†, and next to

* It is ordered by *Gautama* that the womb of every woman dying pregnant shall be opened, the child removed and buried apart from its mother, (a river or creek intervening between the graves) Otherwise the mother will be born again for *ten* successive times, and be subject to the same misfortune

† The *Méy-thee-layéng* are an inferior order of nuns wearing white dresses and living in convents of their own. Their discipline is less severe than that imposed upon the *Bhikúnni*, and their knowledge of the doctrines of the Buddhist faith less extensive

these followed the relatives of the deceased A poor woman whom I learned was mother to the deceased continued to utter the most bitter lamentations the whole of the way, and did not cease from so doing until the corpse had been borne to the spot prepared for its final reception When the litter had been placed by the side of the grave, pieces of cloth, with rice and plantains, were laid out as an offering to the *Phraa*, a leathern carpet was spread upon the ground, and on this the senior *Phoongree* seated himself, assuming a look of deep meditation, and partially concealing his face from public view by means of the *yattowing** that he bore in his hand This done the *Méy-thee-layéng* and relatives of the deceased kneeled upon the ground in two rows (the former kneeling outside), and all made obeisance to the *Phoongree*. Rice was put into their hands, and each individual pronounced the following words in an audible and suppliant tone, receiving from the *Phoongree* replies to the several prayers that were put up.

(Congregation kneeling) *Ogádhzah*† ! *Ogádhzah* ! I once, twice, and three times entreat for thy name's sake, and for the sake of thy holy ministers, that thou wilt forgive me those sins that I have committed in this life, and I also pray that in the future migrations of my soul I may be the first of human beings who shall meet with *Eye-yee-mud-deah*‡ *(ariya Maitríya)*, and finally attain to *Nibbhan*§ with him.

* *Yattou ing*, a kind of fan, borne only by the *Phoongrees*

† *Okasa*, Holy Being

‡ It is the belief of these worshippers of *Gautama* that the age of man was far greater formerly than it is at present, it is now said to be 60 years or more, it will gradually become less, until 10 years will be the average term of existence. This will be followed by an *increase*, so that 1000 years shall be the period of existence allotted to man. When this has occurred, all the images of *Gautama*, and all his sacred writings will be miraculously collected and consumed at the *Bhôdeebêng* tree (The branches of this tree are said to be of gold, and the leaves to resemble emeralds It is celebrated as the place where *Gautama* first became a *Phraa*, or religious teacher To ascertain the site of this tree, as well as the locality of kingdoms and cities known at present by other names, was not one of the least important objects of the Burmah mission sent into Hindustan some years ago under charge of the *méyowoon Thoowé-dông sa-ga-soo*.)

The destruction of the images and writings of *Gautama* will be succeeded by the nativity of the *Phraa Eye-yee-mud-deah*, and all good men then residing upon earth will become his disciples. Occurrences similar to those above described as consequent to the *Nighban* of *Gautama* will mark the departure of *Eye-yee-mud-deah* from the world. *Rámah Phraa* will then appear, and he will declare his successor.

§ *Nibbhan*, *annihilation*, properly. If a man, or woman, is eminently virtuous in this life, he or she, may hope to attain to a *Nibbhan*, *i. e.* not to be born again, but to become as air, smoke, &c. without sense, substance, or shape.

(Phoongree) You have once, twice and three times entreated of me in prayer, and you may hope that your sins will be forgiven to you, and that you will hereafter meet with *Eye-yee-mud-deah,* and attain to a *Nibbhan.*

C *Ogadhzah! Ogadhzah!* once, twice, and three times I vow that I will not commit those five mortal sins which are spoken of in the holy writings, and which I am forbidden to commit

P You have declared that you will not this day commit those sins Is that which you have said true?

C I will do according to that which I have said

P Do you believe in the *Phraa Gautama?* do you believe in his holy writings, and do you acknowledge his ministers?

C All these do I believe and acknowledge

P If you do believe in these*, take not the life of any living being this day, neither steal, neither commit adultery, neither bear false witness, and do not make use of intoxicating liquors

C All these sins will I carefully avoid

Gshén Phraa† ! Accept of these offerings, I pray thee, and pardon the sins that I have committed in this life, pardon also the sins of the deceased for whom these offerings are also presented, and grant that during this life, or in the future migrations of my soul I may not suffer harm from the five enemies‡ of mankind, If I shall be born again as *man,* let me, I pray thee, be placed in a condition far superior to that enjoyed by my fellow creatures, if as a *spirit,* let me be as *Suh-gyah (Sagyá* or *Indra),* in the world of spirits

Accept of these offerings, I pray thee, they are made not for my good alone, but for the future benefit of my parents and relatives, as well as for my spiritual teachers and the rulers of the land They are made also for those who suffer torment in *Ngah-yeh*§, for the spirit in the world above and for all living beings I call *Muth-soon-dyéh*‖ to witness that these offerings are made not for my individual good alone, but for the benefit of all that have the breath of life

(Water is here poured upon the ground through one of the pieces of cloth that had been presented to the *Phraa* The water percolates through the earth, and is supposed to reach the abode of *Muth-soon-*

* These are the five mortal sins

† Lord! Master! &c

‡ The five enemies of mankind are, 1, Fire, 2, Water, 3, The Rulers of the Land, 4, Robbers, 5, Wild Beasts

§ Hell, (q Purgatory?)

‖ *Muth-soon-dyéh* (*Vasundarè*) is the "Recording Angel" who resides in the earth, hears, and marks down every thing that is said.

Burmese Text of the Prayers, translated in page 94

ဂိုဟိသုခဆိုတဲ့

ပြောကာသခပြောကာသ၊ ကာယဂတ်၊ ဝစီဂတ်၊ မနောဂတ်၊ သဗ္ဗဒေဝါသခသိ
ယိခသာအပြစ်တို့ကိုလွတ်ပါစေခြင်းငှာ၊ ပဌမ၊ ဒုတိယ၊ တတိယ၊ တကြိမ်
ခန့်စီ ကြိမ်သုံးကြိမ်ခန့် မြောက်အောင်၊ ဘုရား ရတနာ၊ တရားရတနာ၊ သင်္ဃာ၊ ရတ
နာ ။ ရတနာသုံးပါးတို့ကို ။ အာဂ္ဂိလိုက်မ်လကိုဥမ္မိုဂ် ။ ဂ္ဂဝိ၊ ပုဂ္ဂေ ဟု၊ မြော်ကာ
တော့ ရသောအကြိုး၊ အာဂုဏ်၊ အပယိလေ၊ ပါ ။ ကပါသုမ္ဘာ ။ ရပ္ပညာ ဂ္ဂစ်ပါ၊ ရှေ
သူမြိုင်ပါ ။ တို့မှကင်းကြောင်းသည်သာပြစ်ကုန် ။ နောင်လာလတ္တာနှင့်သော အရိယမ
ဂတ္တေ ယျဘုရား ။ သွင်ပွင့်တော်မူသော်ခု ။ ကိုတိုင်ကိုကြာမ်လက်ဥစ္စာ ဟု
တွေ့ရ၍ ။ မက်တရာ၊ ဗိုလ်တရာ၊ နိဗ္ဗာန်တရာ၊ တော်မြတ်ကို ။ မဂ္ဂတ်မလွဲအမြဲ
ဒေါ်အမ်ဟုတွေ့ရသည်ကိုပြစ်ရပါလိုစ်ပါ ။ ။ ဂ္ဂါသို့ ဂ္ဂဝိ၊ ပုဂ္ဂေါ်ဟု၊ မြော်ရသော
ကြိုအာ၊ ဂုဏ်အပ ယိလေ ပါ၊ ကပါသုမ္ဘာ ရပ္ပညာ ဂ္ဂစ်ပါ၊ ရှေ့သူမြိုဗျပါ တို့မှ ကင်
ညိမ်သည်သာပြစ်ကုန် ။ နောင်လာလတ္တာနှင့်သော အရိယမဂတ္တေ ယျ ။ မြတ်ရှာဘုရား ။
သွင်ပွင့်တော်မူသောအခါ ။ ကိုတိုင်ကိုကြာတ်လက်ဥစ္စာ ။ ဟု၊ တွေ့ရ၍ ။ မက်ဗိုနိဗ္ဗာန်
တရား၊ တော်မြတ်ကို ။ မဂ္ဂတ်မလွဲ ။ အမြဲ ဒေါ် ။ အမ်ရကြောသည်ပြစ် ကျေ ။ ။
ပြောကာသ ခပြောကာသ အဟ်ဘန္တေ တိသရဏေ ကသ ။ ဗဟုသိလ်ခမ်ယာစ
မိ အနုဂ္ဂဟ်ကတ္တာသိလ်ဒေထ မောဘန္တေ ။ ။ ဒုတိယ်ပိ အဟ်ဘန္တေ တိသရဏေ
သဟ ပဗ္ဗသိလ်ခမ်ယာ စာ မိ အနုဂ္ဂဟ်ကတ္တာသိလ်ဒေထ မောဘန္တေ ။ ။ တ
တိယ်ပိ အဟ်ဘန္တေ တိသရဏေ ကသ ဟ ပဗ္ဗသိလ်ခမ်ယာ စ မိ အနုဂ္ဂဟ်ကတ
သိလ်ဒေထ မောဘန္တေ ။ ။ ဗုဒ္ဓေ ဘဂဝတော ဘုရာ ဘဂဝတော ဘုရားတော်သခင်ကို ။ ဗုဒ္ဓ ။
ဗုဒ္ဓံ သရဏံ ဂစ္ဆာမိ ။ ဓမ္မံ သရဏံ ဂစ္ဆာမိ ။ သင်္ဃံ သရဏံ ဂစ္ဆာမိ ။ တိသရဏ ။ ။ ။
ပရိပုဏ္ဏံ ။ ။ ဘာမ ဘန္တေ ။ ။ ပါ ။ ကာ ။ ပါ ။ ကာ ။ ဝေ ။ ။ ။ ။

ကာမေသုမိစ္ဆာစာရာဝေရမဏီ။ မုသာဝါဒါဝေရမဏီ။ သုရာမေရယမဇ္ဇပ
မာဒဋ္ဌာနာဝေရမဏီ။ ။တိသရဏေနသဟပဉ္စသီလံသာဓုကံကတွာအပ္ပမာ
ဒေနသမ္မာရက္ခိတဗ္ဗံ။ ။အာမဘန္တေ။ ။ဘန္တေ အရှင်ဘုရားမယံ။ အကျွ
န်ုပ်တို့သည်။ သံသာရဝဋ္ဋဒုက္ခတော၊ သံသရာတည်ဟူသော၊ ဝဋ်ဆင်းရဲအ
ပေါင်းတို့မှ။ မောစနတ္ထာယ။ ထွက်မြောက်ပါရခြင်းအကြိုးငှာ၊ တိသရဏေန
သဟ။ သရဏာဂုဏ်နှင့်အတူ။ ဒက္ခိဏာဒက်။ အဋ္ဌင်ရဖွက်ကို။ ပါ
ဏတွာသုမ်ချ၍။ ဒေမကာပါလှူပူဇော်ပါကုန်၏။ ဘန္တေ။ အရှင်ဘုရား။ မ
ယံ။ အကျွန်ုပ်တို့သည်။ ကာလဂတာဖာ။ ဘဝဆစ်ဘဝဟောင်းသို့ပြောင်း
သွားလေသောသူကို။ ဥဒ္ဒိဿရမှတ်ပြု၍။ ဇုမ်ဝတ္ထုံ။ ကျဲဖြင်ပုဆိုးအစရှိသ
ည်တို့ကို။ ဒေမကာပါလှူပူဇော်ပါကုန်၏။ ဤသို့အကျွန်ုပ်တို့သည်။ ကာပ
လှူပူဇော်ပါကုန်သောအကြိုးအားဖြင့်။ အပယ်လေးပါးကပ်သုံးပါးရပ္ပ
ည်ရှစ်ပါးရံသူမြိုးငါးပါးတို့မှ။ ကင်းလွတ်သည်သာဖြစ်၍။ သုံခံလူချမ်းသာ
နတ်ချမ်းသာနိဗ္ဗာန်ချမ်းသာမြတ်ကိုရလိုပါ၏။ ဘန္တေ အရှင်ဘုရား။ မယံ အကျွ
န်ုပ်တို့သည်။ ပြုရသောကောင်းမှုကြောင့်။ မွေးသည်မိခင်မွေးသည်ဘခ
င်။ ဆရာသမား။ ဘိုးကြီးဘွားကြီးရေမြေသခင်မှစ၍။ အမျှပေးဝေပါကုန်၏။ အထ
က်ကိုဘဝဂ်အောက်ဆိုအဝီစိ။ အနန္တစကြာဝဠာ။ ဘီလာတပါမြင်းအကြွင်းမ
ရှိ။ သုမ်ဆယ့်တဘုံ။ ကျင်လည်ကုန်သောဝေနေယျဒုက္ခိတ။ သုခိတ။ သတ္တ
ဝါအပေါင်းတို့ကိုအမျှပေးဝေဖောကုန်၏။ ဝသုံဒြေကျိမြေနတ်သားကိုလည်း
အမျှပေးဝေပါကုန်၏။ ဝသုံဒြေကျိမြေနတ်သားသည်အကျွန်ုပ်တို့သည်ကော
င်းမှုမည်များ၍ဘင်မေ့ညားသောလည်။ အကျွန်ုပ်တို့သည်။ ပြုပါရှသောကော
င်းမှုကြောင့်နေ့င်သောကာလ။ သက်သေခံလျှာသည်ဖြစ်စေသော။ ။ ။
[illegible]စေသော။ အမျှအမျှ။ သာဓုသာဓု။ ။ပုဒ်အာ။ ၂၅၀။

dyeh, who has been invoked to bear witness to the sincerity of the above declaration)

This done, all arose from the ground, the corpse was taken out of the litter and deposited in the grave I observed that pawn and spices had been placed in the mouth of the deceased, for the purpose as I was informed of rendering the odour of the body, consequent to decomposition, less offensive to the bystanders At the sight of the corpse, the poor woman commenced her lamentations afresh, and as my curiosity was satisfied, I returned to the *Soogree's* habitation, leaving the *Phoongrees* to perform over the grave of the child (on the opposite bank), a service in every respect similar to that I have just described.

January 17th —The *Mughs* can form no other idea of the distance intervening between one place and another beyond what is derived from the time taken in going over it In a country like this, abounding with impediments of every description, any other species of measurement was out of the question, so substituting my elephant for a *Perambulator*, and making every allowance for the several obstructions met with, I conceive the distance between *Oogah* and *Singhunnethe* to be as much as 16 miles, from that to *Seppo-towng* 12 miles, and as many more from thence to *Rambree*

Bidding adieu to the good old *Soogree*, I set out at day-break on my journey to the capital of the island The *Saaynekyong* creek, after winding through the vale to the right, suddenly takes a turn into the interior, crossing the road within a very short distance of *Seppo-towng* As the tide was at the flood the elephants were unloaded and swam across, a boat having been placed at the disposal of myself and followers Proceeding onwards the route was but a repetition of what had been met with on the preceding day. Patches of paddy ground, succeeded by long mountainous ranges with the same abrupt ascent and inclination, were the never failing features of the country passed over between *Singhunnethe* and *Rambree* The soil on the hills was generally a red clay, containing nodules of chert, and felspar combined with talc. Had I possessed even a common acquaintance with botany, I might have derived much pleasure in the examination of the various vegetable tribes that surrounded me Unfortunately I was a stranger to the greater number, recognizing only those of most frequent occurrence, such as the *Girjun*, *Tilsak*, *Jharral*, wild *Peepul*, and a host of *Mimosas* There were also some very pretty creepers, and a vine which corresponds in description with that given me of the black pepper-plant*. After the

* The black pepper-plant is found on the hills in the Sandoway district

first two or three ranges had been overcome, we approached the village of *Leppang*, the site of an old stockade, and scene of an encounter between the Burmah chief *Némyo-sooyah**, and the Ramoo Rajah *Keembrang*, in which the latter was shamefully defeated From thence it is but a short distance to *Tseembeeyah* and *Kéhsree*, the latter prettily situated on the plain, and surrounded with clumps of trees. Among the inhabitants of *Kéhsree* are a class of people engaged in the oil manufacture, and who shall receive further notice hereafter. The oil is prepared chiefly from the *Thél*, and the mills are in every respect similar to those used in Bengal Beyond *Kéhsree* is *Koyandowng*† with the two guardian temples on its summit and to the right of that, the "*Red Hill*‡" of *Rambree*, almost destitute of verdure, and answering in appearance to that predicated by its name Tiger traps of a novel construction were very numerous in the ghats leading to the town *Rambree* has on several occasions been much infested with tigers, they have been known to come into the town shortly after dark, and entering the houses, carry off the inhabitants Cattle and poultry are even now continually taken away, and it is considered very dangerous to sleep outside upon the *michaun* To facilitate the description of one of these traps, I have endeavoured to represent by a drawing the several parts of which it is constructed

A, is a long§ pole possessing great strength and elasticity, which is bent and held down by B, a peg connected with C, a good thick cane rope. The peg B, is fixed with great care between the bars D, and E,, the bar D, having been previously fastened to the two posts F, F, which are driven into the ground That part of the platform marked G, is brought into contact with the bar E, and the peg B H, is a noose laid upon the platform, and I, a heavy wooden cylinder so nicely attached to the cane rope that the least jirk causes it to fall. The platform is laid upon the path frequented by the tiger, (generally a gap in a fence, or a ravine,) and carefully concealed with grass and leaves The animal treads upon it and it gives way, disturbing the bar E, and peg B, on which the pole springs up to its natural position, bringing the wooden cylinder with such violence upon the arm of the tiger, (already caught in the noose,) that it is generally broken by the concussion This cylinder covers that part of the leg that has been entangled in the noose, and is of great use in preventing the

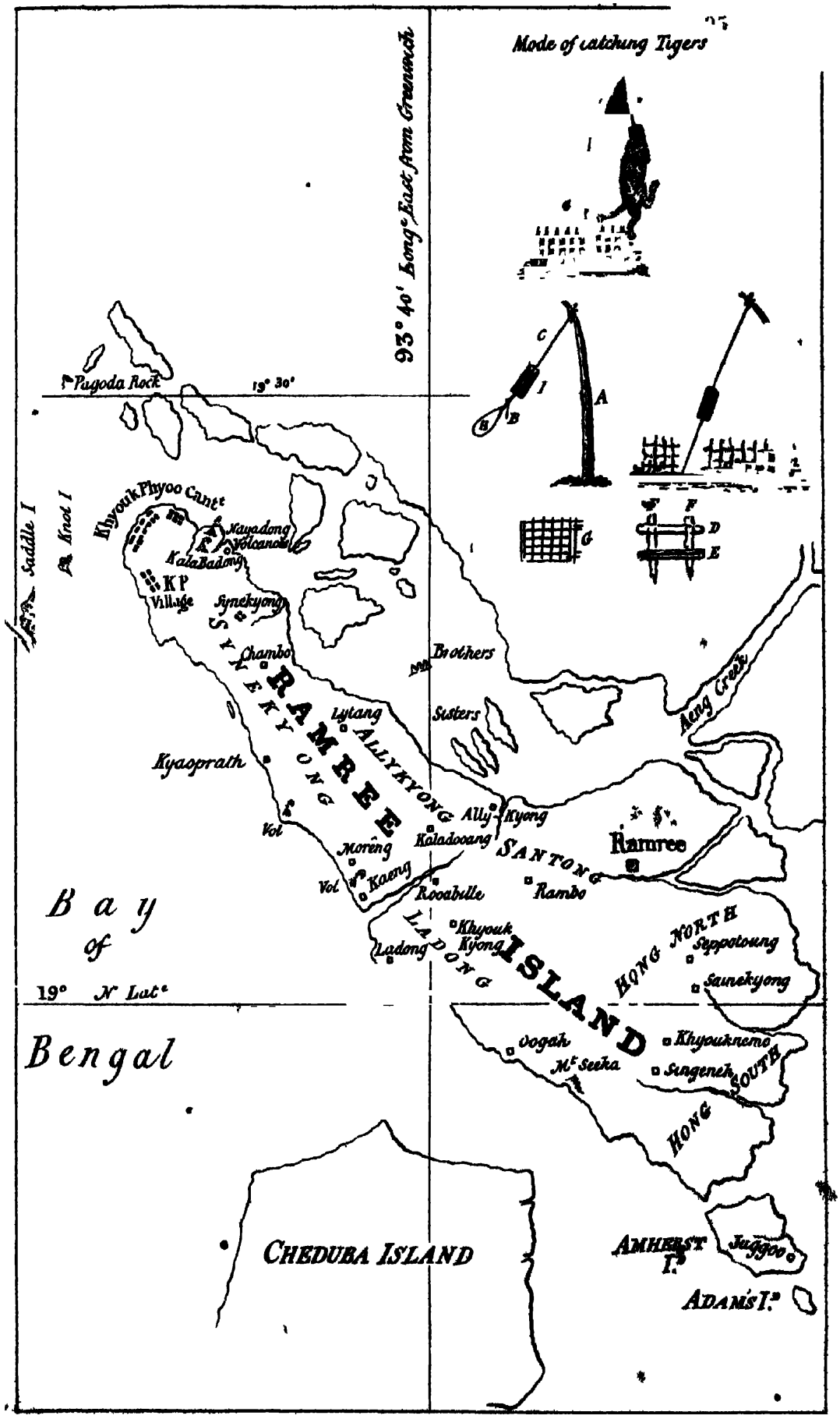
* Afterwards *Meyo-woon* at *Rambree*

† Called "*St George's Hill*" by the troops quartered at *Rambree* during the war. The temples were built by the Burmah Meyowoon *Yeh-jutta-gong*.

‡ Already noticed in vol 2nd (1833), Journal Asiatic Society.

§ A large branch of a tree sometimes serves as well.

Jour as soc.



Mode of catching Tigers
93° 40' Long^e East from Greenwich
Pagoda Rock
19° 30'
Saddle I
Knot I
Khyouk Phyoo Cant^t
Nayadong
Volcanoes
KalaBadong
KP
Village
Synekyong
SYNEKYONG
Chambo
RAMREE
Lytang
ALLYKYONG
Brothers
Sisters
Aeng Creek
Kyaoprath
Vol
Moreng
Kaeng
Vol
Kaladooang
Ally-Kyong
SANTONG
Ramree
Rambo
Rooabille
LADONG
Khyouk Kyong
Ladong
ISLAND
HONG NORTH
Seppotoung
Sainekyong
Bay of Bengal
19° N Lat^e
Oogah
Mt Seeka
Khyouknemo
Singeneh
HONG SOUTH
CHEDUBA ISLAND
AMHERST I.
Juggoo
ADAMS I.
A
B
C
D
E
F
G
H
I

animal from gnawing the rope. The beast hangs suspended in the air at the mercy of the villagers, who dispatch him by means of clubs or bamboos hardened in the fire, and pointed at the end so as to resemble pikes.

Arrived at the highest point of the ascent over *Koyandowng*, the large and pretty town of *Rambree*, surrounded with hills and divided by a creek that is seen in the distance meandering towards the sea, appears spread out to view in the vale below.

(To be continued)

III —*Memorandum of an Excursion to the Tea Hills which produce the description of Tea known in Commerce under the designation of Ankoy Tea By* G J. GORDON, *Esq.*

[Communicated by Dr N. WALLICH, Sec Com Tea Culture]

Having been disappointed in my expectations of being enabled to visit the Bohea hills, I was particularly anxious to have an opportunity of personally inspecting the tea plantations in the black-tea district of the next greatest celebrity, in order to satisfy myself regarding several points relative to the cultivation on which the information afforded by different individuals was imperfect or discordant

Mr GUTZLAFF accordingly took considerable pains to ascertain, for me, from the persons who visited the ship, the most eligible place for landing with the view of visiting the Ankoy hills, and Hwuy Taou bay was at length fixed upon as the most safe and convenient, both from its being out of the way of observation of any high Chinese functionaries who might be desirous of thwarting our project, and from its being equally near the tea-hills, as any other part of the coast, at which we could land As laid down in the map of the Jesuits, there is a small river which falls into the head of this bay, by which we were told we should be able to proceed a good part of our way into the interior We should of course have preferred proceeding by the Ankoy river, which is represented in the same map as having its source to the west of Ngau-ki-hyen and falling into the river which washes Sheu-chee-foia, were it not for the apprehension of being impeded or altogether intercepted by the public functionaries of that city In order to make ourselves as independent as possible of assistance from the people, we resolved to dispense with every article of equipment which was not necessary for health and safety. The weather had for some days been comparatively cold, the thermometer falling to 55° at sunrise and not getting higher than 66° during the

day, so that warm clothing not only became agreeable, but could not be dispensed with during the nights, arms for our defence against violence from *any* quarter, formed likewise a part of our equipments, and, trusting to money, and Mr GUTZLAFF's intimate knowledge of the language and of the people for the rest, we left the ship on the morning of Monday, 10th November, proceeding in the ship's long boat towards the head of the bay, where the town of Hwuy Taou is situated

The party in the boat consisted of Mr GUTZLAFF, Mr RYDER, (second officer of the "Colonel Young,") Mr. NICHOLSON, late quartermaster of the "Water Witch," whom I had engaged for the projected Woo-re journey, and myself, one native servant and eight lascars. The wind being unfavourable, we made rather slow progress by rowing, but taking for our guidance the masts of some of the junks which we observed lying behind a point of land, we pulled to get under it, in order to avoid the strength of the ebb tide, which was now setting against us In attempting to round the point, however, we grounded, and soon found that it was impossible to get into the river on that side, on account of sand-banks which were merely covered at high water, and that it was necessary to make a considerable circuit seaward to be able to enter This we accomplished, but not till 1 A. M At this time a light breeze fortunately springing up, we got on very well for some time, but were again obliged to anchor, at ¼ past 2, from want of water As the tide rose we gradually advanced towards the town of Hwuy Taou, till we came to one of those bridges, of which there are several along the coast, that extend over wide sand flats that are formed at the mouths of the rivers These bridges are constructed of stone piers with slabs of stone laid from pier to pier, some extending over a space of 25 feet and upwards, and others being from 15 to 20 feet space. As the length of this bridge cannot be less than three quarters of a mile, the whole is very striking as a work of great labour, if not exhibiting either much skill or beauty. We were informed by some boat people that we should not find water to carry us beyond the bridge, but observing some tall masts on the other side, we resolved on making the experiment and pushing on as far as we could It was almost dark when we passed under the bridge, and we had not proceeded far when we were again aground. This, however, we attributed to our unacquaintance with the channel, and as the tide floated us off, we continued advancing, notwithstanding the warning of a friendly voice from the bridge that entreated us to return to the town, promising us comfortable quarters, and a guide, &c Being rather distrustful of the motives for this advice,

however, we proceeded for some time longer, but at length found it impossible to proceed farther, the ebb having at the same time commenced We therefore spread an awning, and prepared to make ourselves as comfortable as possible for the night The day had been the warmest we had experienced for a month past, but the night was very cold, and our boats, as may be imagined, far from commodious for so many people At day-light we found that there was not six inches of water in any part of the channel, and from the boat we stepped at once upon dry sand The survey from the bank showed us plainly that it would be impossible to proceed any farther by water We accordingly prepared to march on foot, taking with us three lascars who might relieve each other in carrying our cloak-bag of blankets and great coats, as well as some cold meat We ordered the people to prepare a meal as fast as possible, intending to make a long stretch at first starting, and Mr NICHOLSON was directed to remain in charge of the boat with five lascars, to move her down under the bridge on the return of the flood, and there to wait our return for four or five days Crowds of people now began to crowd round the boat, moved by mere curiosity Mr GUTZLAFF induced some of them to get ducks and fowls for the use of the boat's crew, and strange to say prevailed on one man to become our guide, and on two others to undertake to carry our baggage, as soon as we should be a little farther off from the town and out of the way of observation

After a little, an old gentleman made his appearance on a chair who proved to be the head man of the town he inquired whence we came and whither we were going, which we freely told him With these answers he seemed perfectly satisfied, probably from finding them correspond with what he had been already told by some of the people with whom we had communicated on the subject in seeking information and assistance. He measured our boat with his arms, but offered us no obstruction nor even remonstrance We observed him, however, after he had interrogated us, sending off two or three messengers in different directions, which made us the more anxious to be off It was however past 9 o'clock before Mr RYDER had completed his arrangements for the boat's crew, and the sun was already powerful. We were soon joined by our guide and the coolies, and our cavalcade winding along the foot paths, which are the only roads to be met with, made an imposing appearance Mr GUTZLAFF and the guide led the way, followed by a lascar with a boarding pike, next came the baggage, attended by a lascar similarly armed. I followed with pistols, and attended by a lascar armed with a cutlass, and Mr RYDER carrying a fowling piece and pistols brought up the rear. Skirting the town of

Hwuy Taou, we proceeded in a N N E direction at a moderate pace for an hour and a half, when we stopped at a temple, and refreshed ourselves with tea Nothing could be more kind or more civil than the manners of the poeple towards us hitherto, and if we could have procured conveyance here so as to have escaped walking in the heat of the day loaded as we were with heavy woollen clothes, we should have had nothing farther to desire, as it was, my feet began already to feel uncomfortable from swelling, and after another hour's marching, I was obliged to propose a halt till the cool of the evening Fortunately we found, however, that chairs were procurable at the place, and we accordingly engaged them at half dollar each These were formed in the slightest manner, and, carried on bambu poles, having a cross bar at the extremities, which rested on the back of the bearer's neck, apparently a most insecure as well as inconvenient position, but, as the poles were at the same time grasped by the hands, the danger of a false step was lessened We had not advanced above a mile and a half before the bearers declared they must eat, and to enable them to do so, they must get more money With this impudent demand we thought it best to comply, giving them an additional real each After an hour's further progress we were set down at a town near the foot of the first pass which we had to cross. There the bearers clamourously insisted on an additional payment before they would carry us any further This we resisted, and by Mr GUTZLAFF's eloquence gained the whole of the villagers who crowded round us, to join in exclaiming against the attempted extortion Seeing this the rogues submitted and again took us up Mr G mentioned that while we were passing through another village, the people of which begged the bearers to set us down that they might have a look at us, they demanded 100 cash as the condition of compliance The country through which we passed swarmed with inhabitants, and exhibited the highest degree of cultivation, though it was only in a few spots that we saw any soil which would be deemed in Bengal tolerably good, rice, the sweet potatoes, and sugar-cane were the principal articles of culture We had now to ascend a barren and rugged mountain, which seemed destined by nature to set the hand of man at defiance; yet, even here there was not a spot where a vegetable would take root, that was not occupied by at least a dwarf pine, planted for the purpose of yielding fire-wood, and a kind of turpentine, and wherever a nook presented an opportunity of gaining a few square yards of level ground by terracing, no labour seems to have been spared to redeem such spots for the purpose of rice cultivation In ascending the pass we soon came to places where it was difficult for our bearers to find a

footing, and where they had consequently to pick out their steps as they advanced To assist themselves they gave the chair a swinging motion with which they kept time in raising their feet.

This was far from agreeable, and the first impression felt was that it was done merely to annoy, but we very soon saw that the object was different. The highest point of the pass I should conjecture to be about 1200 feet above the plain, and the descent on the north side to be nearly equal to the ascent from the south, say 1000 feet At half-past four we arrived at a rather romantic valley, which was to be our halting place for the day We proposed to the bearers to carry us on another stage next day, but for this they had the impudence to ask five dls per chair. This of course we would not listen to for a moment, and were afterwards happy that we got rid of such rascals, as good bearers and on moderate terms were procurable at the place. The name of this village is Lung-tze-kio It seems once to have been a place of greater importance than now, exhibiting marks of dilapidation and decay Even the foot-path over the pass must have been at one time an object of attention, as we found in several places the remains of a sort of pavement, and of bridges which were now nearly destroyed The inn at which we stopped afforded as few and mean accommodations as could well be imagined, but we were able to get some fowls deliciously grilled, on which, with the aid of sweet potatoes, and of the salt beef which we brought with us, we made a most hearty repast Among the people who came to see us at the inn was a very respectable looking young man, a student, who won Mr GUTZLAFF's heart by asking him for instruction in religion Unfortunately the whole contents of a box of religious tracts, and other books had been distributed in the morning, and Mr G was unable to supply him with any The request was no doubt prompted by the report of the people who had accompanied us, and who had themselves partaken of Mr G 's liberality before they volunteered This young man strongly recommended to us to alter our course, magnifying the distance of Twa-Bo to which we were bound to 100 *li* or 30 miles, and telling us that at the distance of 40 *li* or 12 miles to the S W we should find tea plantations of a very superior description The exaggeration of the distance led me to suspect the accuracy of the information in other respects, and I had heard enough of contradictory evidence already, not to be swayed by it in the present instance

Nov 12*th*.—Got into our chairs at a quarter past six A M, and proceeded along a narrow rugged dell to a town called Koe-Bo. Several nice looking hamlets were seen on the way. The people were engaged

in reaping the rice, which seemed heavy and well filled in the ear In several places I observed that they had taken the pains to tie clumps of rice stalk together for mutual support Sugar-cane is bound in the same way, and for additional security the outside canes are mutually supported by diagonal leaves, which serve at the same time to form them into a kind of fence The leaves are not tied up round the stalks as in Bengal, the cane is slender, white, hard, and by no means juicy or rich, yet, bating the black fungus powder, which is very prevalent, their surface is healthy, and close growing in a remarkable degree We arrived at Koe-Bo at eight o'clock, and finding we could get water conveyance for part of the way on which we were proceeding, we engaged a boat for that purpose After a hearty breakfast we embarked at 10 A M amidst crowds of people who covered the banks of the river at the ghát On inquiry we found that the river on which we were proceeding in a W N W course, was the same which we passed at Gan-Ke-Luyu, and flowed to Suen-chee-foo The boat was large, but light, and being flat-bottomed drew very little water The stream was so shallow that it was only by tracing the deepest part of the channel from side to side of its bed that we were able to advance at all This was done by poling, in several places the stream was deepened by throwing up little banks of sand so as to confine its course within a channel merely wide enough for the boats to pass through I estimate the width from bank to bank at 200 yards, and should judge from the height at which sugar is cultivated above the level of the present surface, that the greatest depth in the rainy season does not exceed 10 feet Being entirely fed by mountain torrents its rise must be often very sudden, but I did not observe any traces of devastation in its course Its name, Ghan-ke or "peaceful stream," is probably derived from this circumstance, the valley on each side seemed well cultivated, the banks being principally occupied by sugar-cane. At every village the people poured as usual to see us out, vying with each other in marks of civility and kindness The day, however, becoming very hot, we took shelter from the sun under the roof of the boat, to the disappointment of many who waded through the water to gratify themselves with a sight of the strangers Coming at last to a high bank close to a populous town, they actually offered the boatman 400 cash if he would bring us to, and on his refusal, the boys began pelting the boat with clods and stones On this Mr GUTZLAFF went on deck to remonstrate, and Mr RYDER to intimidate with his gun. Betwixt both the effect was instantaneous, and the seniors of the crowd apologised for the rude manner in which the boys had attempted to enforce the gratification of their curiosity. We had been in vain all

yesterday and to-day looking out for a glimpse of tea plantations on some of the rugged and black looking hills close in view, though at almost every place where we halted we were assured that such were to be found hard by At three P. M we reached a town near the foot of the pass by which we were to reach Taou-ee, the place of our destination There we proposed selling our gold, which for the sake of lightness I had brought with me in preference to silver, not doubting that I should find little difficulty in exchanging it at its proper relative value whenever required In this, however, we had been disappointed at our last abode, and we were therefore much vexed at learning from our conductors that the inhabitants of Aou-ee were of such a character that the less we had to do with them and the shorter our stay amongst them the better Some proof of this we had as we were stepping on shore, being for the first time rudely questioned as to our destination and object, and why we had come armed, our reply to the latter query being, that we had armed ourselves with the resolution of resisting violence should it be offered by robbers or others, we were allowed to pass quietly on. The hill we had now to ascend was more rugged, and in some places more abrupt, than that over which we were first carried; and though we had set out at three o'clock, the sun had set long before we came to the end of our journey The moon was unfortunately obscured by clouds, so that nothing could be more unpleasant than the unfortunate *hits* our toes were constantly making against stones, and the equally unfortunate *misses* where an unexpected step downwards made us with a sudden jerk throw our weight on one leg At length we reached a village at the further end of the pass, the inhabitants of which were so kind as to light us on the remainder of our way, by burning bundles of grass, to the eminent danger of setting fire to their rice fields now ripe for the sickle Arrived as Taou-ee we were hospitably received by the family of our guide, and soon surrounded by wondering visitors.

Mr GUTZLAFF speedily selected one or two of the most intelligent of them, and obtained from them ready answers to a variety of questions regarding the cultivation of the plant. They informed him that the seed now used for propagating the plant was all produced on the spot, though the original stock of this part of the country was brought from *Wae-eshan*, that it ripened in the 10th or 11th month, and was immediately put into the ground where it was intended to grow, several being put together into one hole, as the greater part was always abortive That the sprouts appeared in the 3rd month after the seeds were put into the ground, that the hole into which the seeds were thrown are from three to four inches deep, and that as the plants grow the earth

is gathered up a little round their root, that leaves are taken from the plants when they are three years old, and that there are from most plants four pluckings in the year No manure is used, nor is goodness of soil considered of consequence, neither are the plants *irrigated* Each shrub may yield about a *Tael* of *dry* tea annually (about the 12th of a pound) A Mow of ground may contain three or four hundred plants The land tax is 300 cash (720 dols) per Mow The cultivation and gathering of the leaves being performed by families without the assistance of hired labourers, no rate of wages can be specified, but as the curing of the leaf is an art that requires some skill, persons are employed for that particular purpose, who are paid at the rate of 1 dl per pecul of fresh leaf, equal to five dollars per pecul of dry tea The fire-place used is only temporary, and all the utensils as well as fuel are furnished by the owner of the tea They stated that the leaves are heated and rolled seven or eight times The green leaf yields one-fifth of its weight of dry tea The best tea fetches on the spot 23 dls per pecul, (133⅓ *lbs*) and the principal part of the produce is consumed within the province, or exported in baskets to Formusa That the prevailing winds are north-westerly The easterly winds are the only winds injurious to the plants Hoar frost is common during the winter months, and snow falls occasionally, but does not lie long nor to a greater depth than three or four inches The plant is never injured by excessive cold, and thrives from 10 to 20 years It is sometimes destroyed by a worm that eats up the pith and converts both stem and branches into tubes, and by a gray lichen which principally attacks very old plants The period of growth is limited to six or seven years, when the plant has attained its greatest size The spots where the tea is planted are scattered over great part of the country, but there are no hills appropriated entirely to its culture No ground in fact is formed into a tea plantation that is fit for any other species of cultivation, except perhaps that of the dwarf pine already alluded to, or the Camellia Oberfoia Mr. GUTZLAFF understood them to say that the plant blossoms twice a year, in the eighth moon or September, and again in winter, but that the latter flowering is abortive In this I apprehend there was some misapprehension, as seed of full size, though not ripe, were proffered to me in considerable quantities early in September, and none were found on the plants which we saw I suspect that the people meant to say that the seeds take eight months to ripen, which accords with other accounts. We wished much to have spent the following day (the 13th) in prosecuting our inquiries and observations at Tawand and its neighbourhood, but this was rendered impracticable by the state of our finances. We had plenty of gold, but no one could be found who

would purchase it with silver at any price We therefore resolved on making the most of our time by an early excursion in the morning previous to setting out on our return.

We accordingly got up at day-break, and proceeded to visit the spot were the plants were cultivated We were much struck with the variety of the appearance of the plants, some of the shrubs scarcely rose to the height of a cubit above the ground, and those were so very bushy that a hand could not be thrust between the branches They were also very thickly covered with leaves, but these were very small, scarcely above $\frac{3}{4}$ inch in length In the same bed were other plants with stems four feet in height, far less branchy and with leaves $1\frac{1}{2}$ to 2 inches in length The produce of great and small was said to be equal The distance from centre to centre of the plants was about $4\frac{1}{2}$ feet, and the plants seemed to average about two feet in diameter Though the ground was not terraced, it was formed into beds that were partly levelled These were perfectly well dressed as in garden cultivation, and each little plantation was surrounded by a low stone fence, and a trench There was no shade, but the places selected for the cultivation were generally in the bottoms of hills, where there was a good deal of shelter on two sides, and the slope comparatively easy. I should reckon the site of the highest plantations we visited to be about 700 feet above the plain, but those we saw at that height and even less appeared more thriving, probably from having somewhat better soil, though the best is little more than mere sand I have taken specimens from three or four gardens Contrary to what we had been told the preceding night, I found that each garden had its little nursery where the plants were growing to the height of four or five inches, as closely set as they could stand, from which I conceive that the tea plant requires absolutely a *free* soil, *not wet* and *not clayey*, but of a texture that will retain moisture, and the best site is one not so low as that at which water is apt to spring from the sides of a hill, nor so high as to be exposed to the violence of stormy weather There is no use in attempting to cultivate the plant on an easterly exposure, though it is sufficiently hardy to bear almost any degree of dry cold

By half-past 10 A M we set out on our return, in chairs which we were fortunate enough to procure at this village, and reached the banks of the river at Aou-ee a little before one o'clock. In the first part of our way we passed by some more tea plantations on very sterile ground • One in a very bleak situation, with nothing but coarse red sand by way of soil, seemed to be abandoned. Our reception at Aou-ee was much more civil than it had been the preceding

day, the people suggested that we should remain there till a boat could be procured. The day, however, being tolerably cool, we crossed the river, and proceeded on foot along its banks to Kre-bo, where we arrived about four P M On the road a man who had seen us endeavouring to sell our gold the day before, told us he believed he could find us a purchaser Mr GUTZLAFF accordingly accompanied him to the house of a farmer, who after having agreed to give 18 dollars for 30 dollar's worth of gold, suddenly changed his mind, and said he would only give weight for weight At Koe-Bo, however, we were more successful, procuring 18 dollars for the same 30 dollar's worth of gold On the road the villages poured forth their population as we moved along At one place they were actually overheard by Mr GUTZLAFF thanking our guides for having conducted us by that road, and proposing to raise a subscription to reward them At Kre-bo we learned that some petty officers had been inquiring after us, which frightened our guides, and made us desirous to hasten our return Having procured chairs we pushed on accordingly to Koe ee, our first resting place, where we arrived about seven P M, and halted for the night Next morning, the 14th, we mounted our chairs before day-break, but after going a little way the bearers let us down to wait for day-light, and we took the opportunity of going to look at a Chinese play which was in the course of performance hard by There were only two actors but several singers, whose music to our barbarian ears was far from enchanting Crossing the pass we met great numbers of people carrying salt in baskets hung in bangies, as in Bengal, a few with baskets full of the small muscle reared on the mud flats near the place of our landing After getting into the plain we took a more direct road for Taou than that by which we had left it The people forsook their work on the fields, and emptied their numerous villages to gaze at us As the morning was cold I wore a pair of dark worsted gloves, which I found excited a good deal of speculation The general opinion was, that I was a hairy animal, and that under my clothes my skin was covered with the same sort of fur as my hands In China gloves are never worn At length one more sceptical than the rest resolved to examine the *paw*, and his doubt being thus further strengthened, he requested me to turn up the sleeve of my coat I did so, at the same time pulling off a glove to the admiration of the multitude, who immediately set up a shout of laughter at those who had pronounced the strangers of a race half man and half baboons. We met some officers in chairs attended by soldiers, but they offered us no interruption, not even communicating with us. Our bearers, however, easily prevailed on theirs to exchange burthens, each party being thus enabled to direct

their course to their respective homes We arrived at Hwuy Taou before noon, and immediately embarked for the ships, which we reached at three P M We learned from Mr NICHOLSON that after our departure, and while the boat was still aground, a number of Mandarins came down, and carried off almost every thing that was on board, but the whole was returned after the boat was floated down below the bridge As we had no explanation of the matter, we concluded that this proceeding might have been intended for the protection of the property from plunder by the people of the town We found that one of the seed contractors had despatched a quantity of Bohea seeds, arrived during our absence, with a letter stating expectation of being able to send a further supply and to procure cultivators, who would join the ship in the 11th or 12th month On the same evening I embarked on the Fairy, and reached Lintin on Monday the 17th November, with my tea seeds, just one week after our landing at Hwuy Taou to explore the Hwuy tea hills I have been more minute in my details of this little expedition, than may at first sight appear needful, with the view of showing the precise degree and kind of danger and difficulty attending such attempts Our expectation was, at leaving the ship, that we should reach the head of the bay by nine or 10 o'clock A. M and attain a considerable distance from Hwuy Taou the same day, and thus have a chance of passing without attracting the notice of any of the Wanfoo or Government officers Had we waited to ask their permission it would of course have been refused, and we should have been directed in the most authoritative manner to return to the ship We were not a little alarmed when aground in the morning, lest the old gentleman who measured our boat should have deemed it his duty to intercept our progress, but we took care to go on with preparations for our march, as if nothing of the kind was apprehended It is this sort of conduct alone that will succeed in China. Any sign of hesitation is fatal Had we shown any marks of alarm, every one would have kept aloof for fear of being implicated in the danger which we seemed to dread, on the other hand, a confident bearing, and the testimony borne by the manner in which we were armed, that we would not passively allow ourselves to be plundered by authority, inspired the like confidence in all those with whom we had to do, for the rest of the narrative shows that from the people left to themselves we experienced nothing but marks of the utmost kindness and good nature, except indeed, where money was to be got.—there the Chinese, like the people of other countries, were ready enough to take advantage of the ignorance of strangers, though with such a fluent command of the language as Mr GUTZLAFF possessed he was able to

save us from much fleecing in that way I need scarcely add, that no good can result from an attempt to penetrate into the interior of China by a party of foreigners, unless some one of them has at least a moderate facility in expressing himself in conversation with the people

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IV —*Observations on an Article in Loudon's Magazine of Natural History, on the subject of the Albatross By Lieut* Thomas Hutton, *37th Regt N I*

At page 147 of the 32nd Number of Loudon's Magazine of Natural History, a contributor observes

"Coleridge somewhere in his wild and magical 'Rime of the Antient Mariner,' says of the Albatross, whom he introduces as a bird of Omen"

"At length did cross an Albatross,
Thorough the fog it came,
As if it had been a Christian soul,
We hail'd it in God's name
"It ate the food it ne'er had eat,
And round and round it flew,
The ice did split with a thunder-fit,
The helmsman steer'd us through
"And a good south-wind sprung up behind,
The Albatross did follow,
And every day for food or play,
Came to the mariners' hollo"

"Had this Albatross been a sea-gull, the above might have been fact, as well as fancy"

To which another writer adds, at page 372 of the 34th Number

"And not less so, it may be remarked, if it be presumed, that Coleride actually speaks of the Albatross itself This bird is one of the Laridæ, or gull tribe, and as our correspondent Mr Main has in person remarked to us, 'every voyager round the Cape of Good Hope may have observed it to follow and fly round the passing vessel from day to day.' He added, 'this large bird seems to subsist on any animal matter which floats on the water In their following of ships they are easily caught by a strong hook baited with a bit of pork or beef — Their body appears emaciated, being small in proportion to the size of their plumage, as the wings, when extended, measure 9 or 10 feet from tip to tip They appear to be very stupid birds, perhaps from being broken-hearted, from the paucity of food they meet with 800 miles from the nearest land'

"Dr Arnott, as quoted by Mr Rennie, remarks, 'How powerful must be the wing muscles of birds which sustain themselves in the sky for many hours! The great Albatross, with wings extended 14 feet or more, is seen in the stormy solitudes of the southern ocean, accompanying ships for whole days, without ever resting on the waves'"

"Mr Main, whom apprehension of exceeding the truth always leads to speak within bounds, gives above the spread of the wings at 9 or 10 feet, Dr. Arnott,

as appears by Mr RENNIE's quotation, at '14 feet or more,' while the specimen in the Zoological Society's Museum in Bruton Street, and we have seen this specimen, is set down in the Society's catalogue, where a picture of it is given at the following dimensions —'Length from tip of bill to extremity of tail 3 feet 4 inches, expansion of wings, 9 feet' The mean of these three statements of the spread of the wings of the Albatross is 10 feet 10 inches * and although true, without doubt, is the proverb 'medio tutissimus ibis,' we care less about the precise dimensions, than to show that the expansion is on all hands admitted to be great This great expansion of wings, and that wonderful provision in the physiology of birds, by which they are enabled to charge and fill every bone in their body with rarified air, to promote and secure as by a series of balloons their buoyancy, and together with the comparative smallness, and therefore lightness of the body, of the Albatross, in part prepare us to give credence to a supposition entertained by some, that this bird sleeps while on the wing, and the great distance from any land at which it is frequently seen towards the close of day farther favours the supposition

"This power of sleeping in the air has been alluded to by THOMAS MOORE in his beautiful Eastern poem of Lalla Rookh, when describing a rocky mountain beetling awfully o'er the sea of Oman, he says

'While on its peak, that braved the sky,
A ruin'd temple tower'd so high,
That oft the sleeping Albatross,
Struck the wild ruins with her wing,
And from her cloud-rocked slumbering
Started, to find man's dwelling there,
In her own silent fields of air"

"The Albatross is doubtless spoken of in the following facts, told us by a sailor friend, now dead and gone 'A very large bird, sometimes alights on the yards of vessels passing the coast of the Cape of Good Hope, and no sooner is it upon the yards, than it is asleep, and while sleeping, is very easily captured When upon the deck, it cannot soar into the air, on account of the length of its wings It makes a loud and disagreeable noise when molested It is called 'the Booby' by the crew

"The term Booby is, we have since been told, commonly applied by sailors to any long-winged bird, of a whitish colour, although in the above case of the Albatross, the term would seem to express its incautious or booby-like habit of going to sleep within reach of molestation, a habit which those who scout the idea of the bird's sleeping in the air will impute to the desperateness of its necessity"

* I am informed by a gentleman at this station, who came out on the "William Fairlie," that an Albatross was shot on the 23rd March, in lat 26 57′ south, long 29 9′ west, which was wholly white, with the exception of a few feathers clouded with pale-brown on the wings It measured 12 feet from tip to tip of the wings On the 8th April, five more were shot in lat 37 18′ south, long 14° 26′ east The flesh was good, and not at all fishy to the taste It was dry and insipid

As there are several points in this paper on which the writer seems to be misinformed, and which are rather far-fetched, I have ventured to draw a few strictures on it, and to add an extract from a Journal which I kept during a voyage from England to Calcutta

First then, speaking of Albatrosses, the writer says, "*They appear to be stupid birds, perhaps from being broken-hearted from the paucity of food, &c &c.*"

The body of the Albatross, when cleared from the plumage, is certainly very small, and appears out of proportion to the great size of the bird in length and breadth, but, at the same time, though small in size, the two birds which I dissected were extremely plump and fleshy, bearing no signs of a paucity of food, of which there is an abundance, for who that has rounded the Cape has not seen the shoals of flying fish which ever and anon rise from the water as the ship disturbs them in her course Fish, Mollusca, and Medusæ form the food of the Albatross

Why then should he break his heart at the thoughts of starvation!!

Again, "*The great Albatross, with wings extended &c is said to accompany ships for whole days without ever resting on the waves*"

Here I would remark, that his not *having been seen* to settle, is no proof that he *did not* do so, during these whole days, to say nothing of the intervening nights—inasmuch as, it is very unlikely that he was watched for whole days incessantly by any person, and those who have been to sea, and have paid attention to these birds, must acknowledge that they do not merely "fly round the ship," but extend their flight far away over the boundless deep, and are lost to sight, ever and anon returning to the ship in their restless search for food

Besides, the Albatross does not feed on the wing, but as far as my experience carries me, invariably settles on the water before taking his prey,—therefore it follows that for "*whole days*" he does not feed No wonder his heart is broken, and his body emaciated But surely the writer could never suppose that the almighty and merciful Creator, who has so fully provided for the wants of all his creatures, would neglect to supply the wandering Albatross, and doom it to pine away in misery and a state of half-starvation!

Next comes a supposition, that the bird sleeps on the wing, and that the great distance from land at which it is seen at close of day is thought to favour the supposition; in support of which, a pretty quotation from Moore is brought in, to prove, that "castles built in air," are as likely to break the rest of the wandering Albatross, as of man, his lord and master!

Now the Albatross being a sea bird, and furnished with webbed feet—what hinders it from sleeping on the waves like other water-fowls?

Is not motion the effect of will? And does not sleep seal up our eyes in forgetfulness? How then can the Albatross continue its flight, when the will to move its pinions, and direct its course, is lost in sleep? The quotation proves the absurdity of the supposition by showing that the bird is "running his head against a wall!" What the wandering Albatross may do near land I cannot say, but at sea I never saw one rise so high even as the yards of the ship, although the Sooty Albatross *(Diomedea fuliginosa)* very frequently did

With regard to the bird or birds which sailors call a "Booby*," I can say little, as I never had the good fortune to see one captured, but certainly from its flight and appearance at a distance, I should pronounce it to be a gull or petrel, but decidedly not an Albatross, here, however, I speak at random, and shall be happy to receive correction if necessary. Be it what it may, I cannot understand what "*desperate necessity*" there is for the bird's sleeping on board of ship, when it has a fine smooth sea to rest on, and a pair of good broad webbed feet, and a thick impenetrable plumage, made for the very purpose of enabling it to rest on the waters, we know that all water-fowl resort to the land occasionally, and the Booby, being some hundreds of miles at sea, may choose to rest on the only solid footing it can find, in order to break the dull monotony of a daily seat on salt-water!

But joking apart, may I not ask, on what did the Booby rest, before ships had made the passage round the Cape? unless they could sleep on the water, their necessities must have been much more disperate than in the present day!

To the trivial names applied by sailors and casual observers, to these birds, I attach no value whatever, as I have seen the folly of trusting to such names, for instance, one of the Albatrosses which I caught on my last voyage to India, was termed by the officers of the ship, "*a Mollymawk,*" and they laughed at the idea of its being an Albatross, merely because in size and plumage it did not agree with the bird which they were accustomed to term an Albatross Nevertheless, *it is* a true Albatross! Another bird, the Sooty Albatross, was named "*a Peeroo*"

* On 2nd May, "a Booby" was caught asleep on the rigging of the "*William Fairlie*" It had the plumage wholly *brown*, and not white, as stated in Loudon On being seized, it disgorged "five flying fish," all of good size. Does not this prove that there is no *scarcity of food?*

Sailors, like landsmen, who form opinions of the operations of nature, from mere casual and superficial observation, without condescending to look into causes and effects, must of course very often come to erroneous and ridiculous conclusions. Witness the following anecdote which occurred to me

The boatswain told one of the passengers that the stormy petrels, or Mother Cary's Chickens, make no nest, but lay two white eggs on the water, and then take them under their wings to hatch them, during this time the male bird supplies the female with food!

This fable is, I believe, current among the lower class of seamen.

On telling this story, however, the *chief officer* laughed very heartily, and cautioned me not to receive as gospel every "yarn the boatswain chose to spin," but lo! in a very few minutes, *he* told me *as truth*, a story which appeared to me fully as marvellous as the other. He said, that in some of the islands to the southward, and about Cape Horn, there is a bird called the "King Penguin," which had a *pouch between its legs*, into which it puts its egg, (for the Penguin only lays one,) as soon as laid, in this pouch the egg is kept for 24 hours, during which time the female remains on shore, but at the expiration of that time, the male bird, who is also furnished with a similar pouch, returns from his fishing excursions, and relieves the female by receiving the egg into his custody for the next 24 hours. They take a very long time to shift this egg from one pouch to the other, and although there are several species of Penguin on those islands none of them are furnished with a "*patent egg-boiler*," save his majesty the King Penguin of the Southern Isles!!

He added, that the bird may be induced to drop the egg, although reluctantly, by running a stick between its legs!!

Having offered these remarks, I shall proceed in my next, to give you an extract from my Journal, kept on the voyage, in which I noted down every circumstance connected with Natural History, and which being written not from memory, but from facts at the moment occurring, may perhaps be considered worthy of perusal

Since writing the above, I have had an opportunity of perusing Griffith's Translation of Cuvier, and find, that the Booby is stated to be the "Pelecanus Sula," the plumage is thus described "Belly and vent, all white, when young, all brown!" this is rather a meagre description, but nevertheless proves, that the Booby is not an Albatross, as supposed by the writer in Loudon's Nat Hist.

V.—*Roof of the New Iron Foundery at Kasipur near Calcutta*

We have requested Major HUTCHINSON of the Engineers, the architect of this elegant structure, to favour us with drawings of its various details, that we may make known, as far as the circulation of our journal permits, his very successful combination of the cast-iron truss with a wrought-iron tie to roofs of large span in this country We are so little accustomed to see any thing else in India but the heavy flat roof with its massy timbers groaning under an inordinate load of terrace-work heaped up most disadvantageously in the centre to allow a slope for the water to run off, while the invisible white ant is scooping out the solidity of the timber, and the dry rot is corroding the ends that support the whole on the wall,—that the eye rests with quite a pleasurable sensation on the view of a light, airy frame-work like that before us, composed of materials indestructible, wherein the strains and pressures are counterpoised, the load lightened, the liability to crack and leak lessened, and the repair of every part rendered easy and entirely independent of the rest

The progress of improvement is notoriously slower in Government operations than in private works When cast-iron beams were first brought to India on private speculation, and were offered to Government by a mercantile house in this town, they were rejected The roof of a large private godown was soon after constructed with them, and their efficacy thus proved, then immediately a re action took place, and a large quantity was indented for by Government The Hon'ble Court sent them out, and they have remained until now totally unemployed although numerous public buildings have been erected since they arrived

It was, we know, a subject of lengthened debate what sort of roof should be given to the foundery A timber trussed roof had been sanctioned at 15,000 rupees, and we may, perhaps, rather attribute the substitution of the present one to the numerical reduction of the pecuniary estimate, than to any actual conviction of its superiority in other respects, for the beams being already provided, the whole cost of the present roof, exclusive of them, has been only rupees 11,000

The New Foundery, or rather the room in which the cannon are turned and bored, is a spacious hall, of 169¼ feet long by 50 feet clear span in breadth, and 40 feet in height from the floor to the vertex of the roof, entirely open from end to end, lighted by a range of upper windows, and surrounded by a suite of apartments of half elevation. The steam machinery of the several borers and lathes, is arranged along one side of this room, in a compact and exceedingly neat manner. It is impossible

to attempt its description; those who are fond of mechanical inventions, will be amply gratified by an inspection of the whole, especially by the ingenious contrivance for adjusting the angle of the slide rests and cutters, for the exterior bevil of the gun.—the circular revolving tools for turning the trunnions —the crane carriage for the guns, &c

The self-acting principle by which the exterior of the gun is turned, while the interior is bored, so as to save one half of the time, while it ensures perfect concentricity of the outer and inner circles, is, we believe, an invention of Major HUTCHINSON's, who took the opportunity when on furlough, of visiting some of the principal foundaries in Europe, and studied to adopt every improvement suggested by their inspection

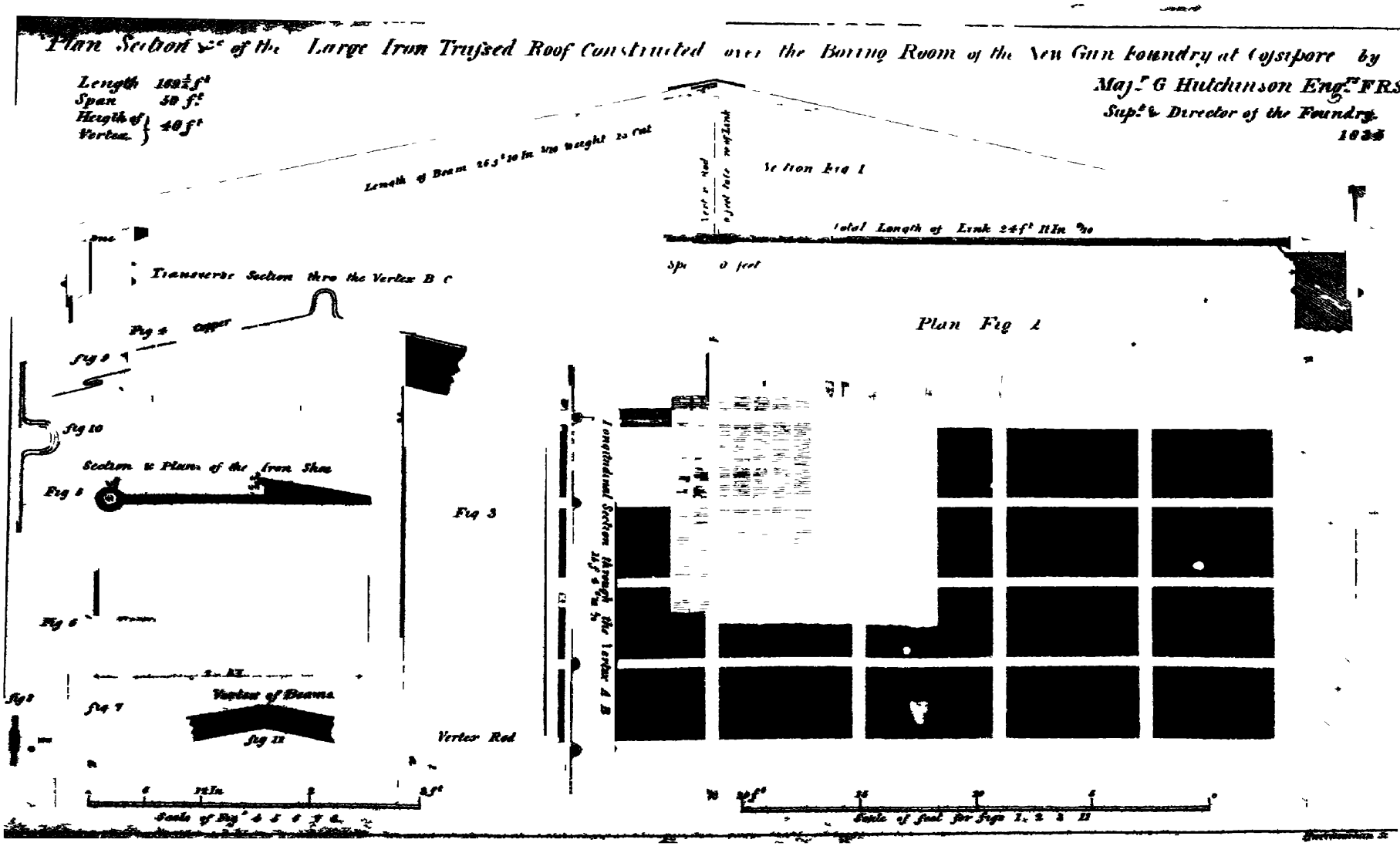
The whole apparatus is driven by a small engine of 10 horse power, which also works a circular, and a reciprocating, saw, and a loam mill for the casting moulds of the foundery

The superficial area of the hall is 8462 square feet; to form an idea of this magnitude, it may be mentioned that the noble edifice of the new Town Hall in Birmingham, is said to contain a larger space than any room in Europe, and will accommodate between three and four thousand persons sitting, or ten thousand standing, that room is 140 feet long, by 65 feet broad, making a superficial area of 9100 feet, which is only 638 feet more than the Kásipur apartment

The roof consists of 10 trusses, Plate VI Fig 1, each composed of a pair of cast-iron beams pitched at an elevation of $12\frac{1}{2}$ feet in the vertex, and tied together at foot by a horizontal chain supported in the centre by a vertical rod suspended from the angle The truss-frames are 15 feet 4.6 inches apart · they support light cross-beams and rafters of wood, upon which the planking of the roof is nailed The weight of one truss with its entire load and chain, is equal to about five and half tons, diffused over the two iron beams.

The chain is three inches deep by one inch thick, = 3 inches in section, consequently the applicable force of tension of the chain is $3 \times 9 = 27$ tons, and the ultimate strength of it $3 \times 27 = 81$ tons. The above weight of five and half tons diffused over the two beams, $= 2\frac{3}{4}$ tons on each beam, gives according to the sine of the angle of elevation, a tension on the chains of about five and half tons, or only one-fifth the stretching weight, or one-fifteenth of the ultimate strength of the chains.

The iron beams and chains were all proved before they were put up, by suspending for several days without effecting the slightest apparent alteration, a weight of six tons from the vertex, producing a trial tension of about 12 tons, which is more than twice the actual tension.


Plan Section &c of the Large Iron Trussed Roof Constructed over the Boring Room of the New Gun Foundry at Cossipore by
Maj.r G Hutchinson Eng.rs F R S
Sup.t & Director of the Foundry
1835
Length 169½ ft
Span 50 ft
Heigth of Vertex 40 ft
Length of Beam 26 ft 10 In 1/10 weight 25 cwt
Section Fig 1
Total Length of Link 24 ft 11 In 9/10
Transverse Section thro the Vertex B C
Fig 4
copper
fig 9
fig 10
Section & Plans of the Iron Shoe
Fig 5
Fig 3
Fig 6
Vertex of Beams
fig 7
fig 8
fig 11
Vertex Rod
Longitudinal Section through the Vertex A B
Plan Fig 2
Scale of Fig.s 4 5 6 7 8
Scale of feet for figs 1 2 3 11

Each extremity of the tie-rods is bolted to a kind of shoe, (represented in figs. 5 and 6,) resting upon a stone slab on the wall, into which the lower end on the iron beam abuts, (Fig. 1)

Fig 2, is a plan of the roof, shewing the disposition of the frame, planking and copper sheathing In the section, Fig 3, the longitudinal rod is seen which steadies all the ties from lateral shake

Fig 7, (*a*) shews on a larger scale the mode in which the longitudinal tie-rods (*á*) are united by a bolt, (Fig 8,) having two right-hand screws, passing through the central coupling plates of the chains, and the eye of the suspension vertex rod This rod being firmly attached by two bolts (*b*) through the beams at the vertex, any derangement whatever of the roof, either vertically or horizontally, is effectually prevented At each end of the roof the longitudinal rods pass through the walls, to which they are firmly fixed.

Fig 9, shews the horizontal overlaps of the copper sheathing, which are cemented with white lead, and Fig 10, the mode in which the copper passes over the wooden battens, fixed on the planks, to which only the copper is fastened by copper rivets , a copper cap or ridge-tile lies over the whole length, to prevent the insinuation of water at the fold it answers this purpose so effectually, that the roof was everywhere found perfectly water-tight, during the late heavy season of rain, the first it had experienced.

The Kásípur roof was set up without the assistance of any scaffolding from below An experimental truss of timber supported on chains, having been previously made to shew the advantageous application of iron chains instead of tie beams of timber to roofs of so large a span, it was converted into a platform, moveable upon wheels along the top of the walls, upon which by means of a crane fixed at one end of the frame, the iron beams and every thing else was easily and expeditiously raised and fixed , the beams, &c for the opposite side of the roof being passed upon wheels across the platform. The whole frame-work was put up in 20 days

Before closing our short account of the Kásípur roof, we must notice a curious optical deception, for which we are somewhat at a loss for a correct explanation On entering the room and looking up at the roof, it strikes every beholder that the roof has somewhat sunk, and the horizontal tie-rod is about five or six inches lower in the centre than near the walls. So firmly impressed were we of this being the case, that standing at one end of the room, and holding two flat brass rulers, overlapping one another before the eye, we could readily measure the apparent angle of the tie-rod by raising the ends of the rulers so as to coincide with the two halves of tie-rods On mounting the

roof and looking in at the upper window of either end, the same effect was still visible, though in a diminished degree, and we were not convinced that it was a deception, until Major HUTCHINSON at our request caused an actual measurement to be made by a perpendicular wooden batten from an accurately adjusted level on the stone floor It was then proved that there did not exist a difference of level even to the amount of a tenth of an inch. Whence arises the illusion? Is it that the eye, judging of directions by comparison with other objects, and having the numerous lines of the pent roof inclined in opposite directions to each half of the horizontal rods, is thus perplexed in its estimate? the ruler experiment is opposed to such an explanation. It may, perhaps, be owing to the effect of light from the upper windows, which frequently gives a curved appearance to wooden beams from the decrease of illumination from side to centre. If the phenomenon resemble the effect of the eyes in a portrait always looking the same whencesoever viewed, or the curves formed by spokes of a wheel passing a railing, as has been suggested, the effect should admit of a rigid explanation, and we may hope to obtain it from some one of our readers who may have time to investigate this singular deception

NOTE —The mode of calculating the strain upon the iron rods in the above account is familiar to engineers, but it may be acceptable to others (for in India every man is his own architect), to be furnished with a correct table of the strength of timbers and iron the following extract therefore from Mr BARLOW's report on the subject to the British Association in 1833, may be acceptable He prefaces it by a precis of the various opinions and theories hitherto formed to explain the strain and process of fracture, and strongly recommends TREDGOLD's Treatises on Iron and on Carpentry There is now no longer any disagreement on the leading principles connected with the strength of materials, excepting such as arise from the imperfect nature of the materials themselves, which furnish different results even in the hand of the same experimenter

Formulæ relating to the ultimate Strength of Materials in cases of Transverse Strain

Let l, b, d, denote the length, breadth and depth in inches in any beam, w the experimental breaking weight in pounds, then will $\frac{l\,w}{b\,d} = S$ be a constant quantity for the same material, and for the same manner of applying the straining force, but this constant is different in different modes of application Or, making S constant in all cases for the same material, the above expression must be prefixed by a co-efficient, according to the mode of fixing and straining.

1 When the beam is fixed at one end, and loaded at the other,

$$\frac{l\,w}{b\,d^2} = S.$$

2. When fixed the same, but uniformly loaded,

$$\frac{1}{2}\quad\frac{l\,w}{b\,d^2} = S.$$

3. When supported at both ends, and loaded in the middle,

$$\frac{1}{4} \times \frac{l\,w}{b\,d^2} = \text{S}.$$

4. Supported the same, and uniformly loaded,

$$\frac{1}{8} \times \frac{l\,w}{b\,d^2} = \text{S}.$$

5 Fixed at both ends, and loaded in the middle,

$$\frac{1}{6} \times \frac{l\,w}{b\,d^2} = \text{S}.$$

6. Fixed the same, but uniformly loaded,

$$\frac{1}{12} \times \frac{l\,w}{b\,d^2} = \text{S}.$$

7 Supported at the ends, and loaded at a point not in the middle, $n\ m$ being the division of the beam at the point of application,

$$\frac{n\,m}{l^2} \times \frac{l\,w}{b\,d^2} = \text{S}.$$

Some authors state the co-efficients for cases 5 and 6 as $\frac{1}{8}$ and $\frac{1}{12}$ but both theory and practice have shown these numbers to be erroneous

By means of these formulæ, and the value of S, given in the following table, the strength of any given beam, or the beam requisite to bear a given load, may be computed This column, however, it must be remembered, gives the ultimate strength, and not more than one-third of this ought to be depended upon for any permanent construction

Formulæ relating to the deflection of beams in cases of Transverse Strains.

Retaining the same notation, but representing the constant by E, and the deflection in inches by δ, we shall have,

Case 1	$\frac{32}{1} \times \frac{l^3 w}{b\,d^3\delta} = \text{E}$		Case 4.	$\frac{5}{8} \times \frac{l^3 w}{b\,d^3\delta} = \text{E}.$
2	$\frac{12}{1} \times \frac{l^3 w}{b\,d^3\delta} = \text{E}$		5.	$\frac{2}{3} \times \frac{l^3 w}{b\,d^3\delta} = \text{E}.$
3	$\frac{1}{1} \times \frac{l^3 w}{b\,d^3\delta} = \text{E}$		6	$\frac{5}{12} \times \frac{l^3 w}{b\,d^3\delta} \times \text{E}.$

Hence again, from the column marked E in the following table, the deflection a given load will produce in any case may be computed, or, the deflection being fixed, the dimensions of the beam may be found Some authors, instead of this measure of elasticity, deduce it immediately from the formula $\frac{l^3 w}{3b\,d^3\delta} = \text{E}$, substituting for w the height in inches of a column of the material, having the section of the beam for its base, which is equal to the weight w, and this is then denominated the modulus of elasticity. It is useful in showing the relation between the weight and elasticity of different materials, and is accordingly introduced into most of the printed tables

The above formulæ embrace all those cases most commonly employed in practice. There are, of course, other strains connected with this inquiry, as in the case of torsion in the axles and shafts of wheels, mills, &c. the tension of bars

in suspension bridges, and those arising from internal pressure in cylinders, as in guns, water-pipes, hydraulic presses, &c but these fall rather under the head of the resolution of forces than that of direct strength It may just be observed, that the equation due to the latter strain is

$$t\,(c-n) = n\,R$$

where t is the thickness of metal in inches, c the cohesive power in pounds of a square inch rod of the given materials, n the pressure on a square inch of the fluid in pounds, and R the interior radius of the cylinder in inches Our column marked C will apply to this case, but here again not more than one-third the tabular value can be depended upon in practice

Table of the Mean Strength and Elasticity of various Materials, from the most accurate experiments

Names of Materials	Specific gravity	C Mean strength of cohesion on an inch section, lbs	$S = \frac{l\,w}{4\,b\,d}$ Constants for transverse strain	$E = \frac{l^3 w}{b\,d}$ Constants for deflection
WOODS				
Ash, English,	760	17000	2026	6580000
Beech, ditto,	700	11500	1560	5417000
Birch, ditto,	700		1900	6570000
Deal, Christina,	680	11000	1550	6350000
Elm, English,	540	5780	1030	2803000
Fir, Riga,	750	12600	1130	5314000
Larch, Scotch,	540	7000	1120	4200000
Oak, variable, from	700	9000	1200	3490000
Oak, variable, to	900	15000	2260	7000000
Poon, E Indian,	600	14000	2200	6760000
Pine, pitch,	660	10500	1630	5000000
Satin wood, B	1020	10866	2403	6929108
Saul, E Indies, B	894	16351	2290	8748000
Sisoo, ditto, B	1032	18500	2548	7922716
Teak, ditto,	750	15000	2460	9660000
Ditto, ditto, B.	729	21957	1447	6665142
IRON				
Cast iron, from	7200	16300	8100	69120000
Cast iron, to	..	36000		
Malleable iron,	7760	60000	9000	91440000
Iron wire,		80000		

[Those marked B are extracted from Captain BAKER's list in the 8th volume of the Asiatic Researches, which contains a very full and valuable list of the strength of Indian woods —ED]

VI —*Miscellaneous*

1.—*Desiderata and Recommendations of the British Association for the Promotion of Science*

In addition to the list of desiderata promulgated by the Association, on its first meeting, which we re-published in the first volume of this Journal, page 308, the "Third Report," for 1833, contains several new suggestions and inquiries, whence we hasten to extract such items as it may come within the power of Indian scientific men to elucidate.

In matters of scientific announcement, we are glad to perceive, that the English Government has undertaken the expense of reducing the observations of BRADLEY, MASKELINE, and POND, on the sun, moon, and planets, at the suggestion

of the Association. Also, that Colonel SYKES has been requested to prepare for publication his valuable statistical returns relative to the four collectorates of the Deccan, subject to the Bombay Government; while Professor JONES is to "*endeavour to obtain permission* to examine the statistical records understood to exist in great number in the archives of the India House, and to prepare an account of the nature and extent of them" Thus there may be some chance of the Reports of Dr BUCHANAN seeing the light through this unexpected channel, although the Government of India has itself declined permitting the continuance of their publication on the nearly gratuitous terms proposed and acted on by Captain HERBERT for the Dinajpúr volume*!

DESIDERATA CAPABLE OF ILLUSTRATION IN INDIA

Meteorology

1. Experimental data for the theory of refraction

What is the law of the decrease of temperature, or of density, in ascending?

How does this vary at different times?

Can any means be contrived for indicating practically at different times the modulus of variation?

Does the refractive power of air depend simply on its density, without regard to its temperature?

Is it well established that the effects of moisture are almost insensible?

Can any rule be given for estimating the effect of the difference of refraction in different azimuths, according to the form of the ground?

When the atmospheric dispersion is considerable, what part of the spectrum is it best that astronomers should agree to observe?

2 That the Committee in India be requested to institute such observations as may throw light on the horary oscillations of the barometer near the equator

3 That the Committee in India be requested to institute a series of observations of the thermometer during every hour of the day and night

4 That the decrease of temperature at increasing heights in the atmosphere should be investigated by continued observations at stated hours and known heights The hours of 9¼ A M and 8½ P M, as giving nearly the mean temperature of the year, are suggested for the purpose

5 That persons travelling on mountains, or ascending in balloons, should observe the state of the thermometer, and of the dew-point hygrometer, below, in, and above the clouds, and determine how the different kinds of clouds differ in these respects

6 That the temperature of springs should be observed at different heights above the mean level of the sea, and at different depths below the surface of the earth, and compared with the mean temperature of the air and the ground Detached observations on this subject will be useful, but a continued and regular series of results for each locality will be more valuable

7 That series of comparative experiments should be made on the temperature of the dew point, and the indications of the wet-bulb hygrometer, and that the theory of this instrument should be further investigated.

8 Observations on the horary oscillations of the barometer, at considerable heights above the sea This more particularly applies to places near the equator

9 Observations on the phenomena of wind at two stations, at considerably different elevations The direction of the wind should be noted in *degrees*, beginning from the south, and proceeding by the west

Magnetism.

10 That observations should be made in various places with the dipping-needle, in order to reduce the horizontal to the true magnetic intensity

11 A regular series of observations conducted in this country on the diurnal variation of the needle.

Geology

12 That measurements should be made, and the necessary data procured, to determine the question of the permanence or change of the relative level of sea and land on the coasts of Great Britain and Ireland, (or other parts of the world) The measurements to be so executed as to furnish the means of reference in future times, not only as to the relative levels of the land and sea, but also as to waste or extension of the land

* See Preface to the second volume of the Journal Asiatic Society.

13. That the history of ancient vegetation should be further examined, by prosecuting the researches into the anatomy of fossil wood, which have been exemplified in Mr Witham's recent volume

14 That the quantity of mud and silt contained in the water of the principal rivers should be ascertained, distinguishing as far as may be possible, the comparative quantity of sediment from the water at different depths, in different parts of the current, and at different distances from the mouth of the river, distinguishing also any differences in the quality of the sediment, and estimating it at different periods of the year, with a view of explaining the hollowing of valleys, and the formation of strata at the mouths of rivers

15 That the experiments of the late Mr Gregory Watt, on the fusion and slow cooling of large masses of stony substances, should be repeated and extended by those who, from proximity to large furnaces, have an opportunity of trying such experiments on a large scale, and that trial should be made of the effect of long-continued high temperature on rocks containing petrifactions, in defacing or modifying the traces of organic structure, and of the effect of the continued action of steam or of water at a high temperature, in dissolving or altering minerals of difficult solution

16 That the dimensions of the bones of extinct animals should be expressed numerically in tables, so as to show the exact relations of their dimensions to those of animals now living, and also to show what combinations of dimensions in the same animal no longer exist

17 That the following geological queries be proposed·

1 Are any instances of contorted rocks interposed between strata not contorted?

2 Is there any instance of secondary rocks being altered in texture or quality by contact with gneiss or primary slates?

3 Is the occurrence of cannel coal generally connected with faults or dislocations of the strata?

4 What is the nature of the pebbles in the new red sandstone conglomerate in different districts do they ever consist of granite gneiss, micaslate, chert, millstone, grit, or any other sandstone which can be traced to the coal series?

18 The attention of residents in our remote foreign dependencies is invited to the two great questions of comparative geology and palæontology 1. Is there or is there not such a general uniformity of type in the series of rock-formations in distant countries, that we must conceive them to have resulted from general causes of almost universal prevalence at the same geological æra? 2 Are the organic remains of the same geological period specifically similar in very remote districts, and especially under climates actually different, or are they grouped together within narrower boundaries, and under restrictions as to geographical habitats analogous to those which prevail in the actual system of things?

19 An examination of the geological structure of the countries constituting the great basin of the Indus, where, if in any part of India, it is supposed a complete series of secondary strata may be expected

Zoology

The Committee recommended to the consideration of Zoologists the following subjects of inquiry

20 The use of horns in the class mammalia, the reason of their presence in the females of some, and their absence in those of other species, the connexion between their development and sexual periods, the reason of their being deciduous in some tribes, and persistent in others

21 The use of the lachrymal sinus in certain families of the ruminantia

22 The conditions which regulate the geographical distribution of mammalia

23 The changes of colour of hair, feathers, and other external parts of animals, how these changes are effected in parts usually considered by anatomists as extra-vascular

24 The nature and use of the secretions of certain glands immediately under the skin, above the eyes, and over the nostrils, in certain species of the grallatores and natatores, the nature and use of the secretion of the uropygial gland.

25. How long and in what manner can the impregnated ova of fishes be preserved, for transportation, without preventing vivification when the spawn is returned to water.

26. Further observations on the proposed metamorphosis of decapod crustacea, with reference to the views of THOMPSON and RATHKE

27. Further observations on the situation of the sexual organs in male spiders, and on their supposed connexion with the palpi.

28. The use of the antennæ in insects. Are they organs of hearing, of smell, or of a peculiar sensation ?

29. The function of the femoral pores in lizards, and the degree of importance due to them, as offering characters for classification.

Botany

30 An accurate account of the manner in which the woody fibre of plants is formed

31. An investigation of the comparative anatomy of flowerless plants, with a view to discover in them the analogy and origin of their organic structure

32. The cause of the various colours of plants.

33. The nature of the fæcal excretions of cultivated plants, and of common weeds, the degree in which those excretions are poisonous to the plants that yield them or to others, the most ready means of decomposing such excretions by manures or other means

Tides. (See Journal Asiatic Society, vol. II page 151.)

Falling stars M QUETELET's mode of observing and recording the characteristic circumstances of these meteors is recommended to notice "I take my station out of doors, in a situation which commands a good view of the sky, with a map of the heavens spread out before me When a falling star appears, I mark on the map the point of its commencement, the line of its course among the nearest stars, and the point where it vanished This is done by an *arrow-line* A number of reference is added, which connects it with a book-register of the exact time, magnitude, duration, and other circumstances. Contemporaneous observations at distant stations are much desired.

2 —*Manilla Indigo, (so called)*

There has lately appeared in the Calcutta market an article purporting to be Indigo from Manilla The packages containing it are to all appearance Chinese, being covered with mats and tied round with split ratans like tea-boxes A sample of this having been sent me in August last, for comparison of quality with other Indigo, I caused a portion to be incinerated, and found the ash highly ferruginous, and weighing 52 per cent of the whole,—18 being the greatest percentage I had ever found, and that only in refuse Indigo The specific gravity was 1·80 Some of the ash dissolved in muriatic acid afforded a copious precipitate to Mur Barytes, and to Prussiate of Potash. I therefore imagined that the Indigo had been precipitated from the vat with a ferruginous alum, and proceeded no further with its examination

Having been however recently favoured with another sample from Mr C K. ROBISON, under a suspicion that the substance was not Indigo but *Prussian Blue*, I submitted a portion to tests which at once proved the truth of this supposition. By digestion in caustic alkali, hydrocyanic acid may be taken up while the oxyde of iron remains behind, on acidifying the solution and adding to it a drop or two of sulphate of iron, the Prussian Blue is again formed. The readiest test, however, is to place a small portion of the suspected matter on a hot coal or iron If it be indigo, a fine purple smoke instantly rises, and it takes fire The Prussiate gives off water, and at last burns feebly It is also much heavier than indigo, but its colour, in the cake, is a fine clear blue, rather of a coppery streak

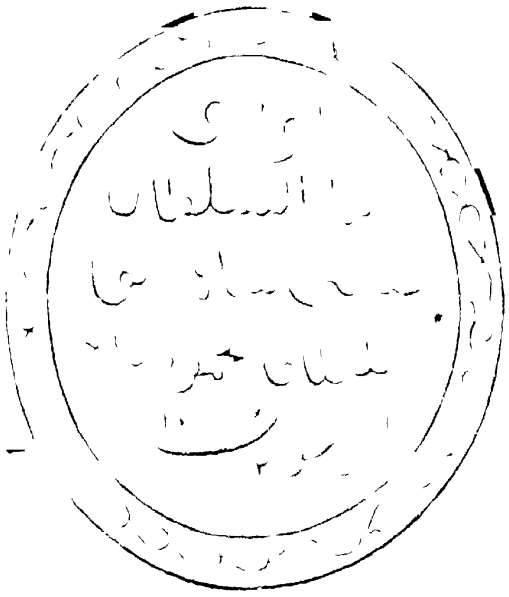
It is reported that the article in question was manufactured in America, and shipped to France, where Indigo was selling at 14 francs Being unsaleable, it was re-shipped to America, whence it found its way to Canton, where it underwent some change, and was brought to Calcutta, and remains to spread alarm among our manufacturers of Indigo, at the prospect of a fair competition in the blue market they have so long monopolized.—ED.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of February, 1835

Day of the Month	Observations at 10 A. M.							Observations at 4 P. M.							Register Thermometer Extremes		Rain, inches.	Wind.			Weather		
	Barometer at 32°	Wet Bar. do.	Aq. Ten. deduced	Ther. in air	Diff. of W. T. Depress	Leslie's diff Hygrom	Hygrom	Barometer at 32°	Wet Bar at do	Aq. Ten deduced	Thermometer in air	Different	Leslie's diff Hygrom	Hygrometer	Cold on Grass	Heat in sun		Morning	10 A. M.	4 P. M.	Morning	10 A. M.	Evening
1	[illegible]	[illegible]	[illegible]	[illegible]	12,1	[illegible]	71	[illegible]	,200	,773	71	14,3	14,3	68	48,2	106,2		nw	nw	sw.	[illegible]	clear	clear
2	[illegible]	[illegible]	,675	[illegible]	10,5	10,0	76	[illegible]	,151	,803	[illegible]	13,3	13 1	75	55,0	100,4		nw	nw.	w	do	do	do
3	,043	[illegible]	[illegible]	[illegible]	7,7	7,5	89	[illegible]	,18[illegible]	,750	[illegible]	9,8	9,7	81	51 2	102,5		W	nw	nw	do	do	do
4	,042	[illegible]	[illegible]	[illegible]	8,3	7,7	86	[illegible]	,12[illegible]	,916	[illegible]	11,4	11,1	78	57,0	105,2		ne.	nw.	nwt.	do	do	do
5	,082	[illegible]	[illegible]	[illegible]	5,9	5,7	[illegible]	[illegible]	,13[illegible]	[illegible]	[illegible]	8,1	7,9	87	54,2	106,1		ne.	w	[illegible]	do	do	do
6	,056	[illegible]	[illegible]	[illegible]	4,5	4,8	[illegible]	[illegible]	,1[illegible]	[illegible]	[illegible]	7,[illegible]	8,4	85	54,4	106,0		E	nw	[illegible]	fog.	do	do
7	,090	[illegible]	[illegible]	[illegible]	[illegible]	4,3	[illegible]	[illegible]	,1[illegible]	[illegible]	[illegible]	7,[illegible]	7,0	91	59,7			NW	n.	[illegible]	cloudy.	[illegible]	[illegible]
8	,102	[illegible]	[illegible]	[illegible]	[illegible]	5,8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8,1	7,[illegible]	85	59,8			NW	n.	n	cumuli	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	750	[illegible]	9,[illegible]	8	61,4			o.	[illegible]	[illegible]	do	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10,[illegible]	[illegible]	[illegible]	117		n	[illegible]	sw.	clear.	[illegible]	[illegible]
11	,072	[illegible]	,724	71,6	5,5	5,6	93	,894	,049	,845	74,9	9,6	10,2	80	54,2	127,0		[illegible]	sw	S	fog, heavy.	do	do
12	,025	[illegible]	,745	71,4	8,7	8,4	85	,890	,080	,819	75,1	11,7	12,4	75	56,1	129,[illegible]		n	nw.	sw	do light.	do	do
13	,016	,228	,792	72,7	7,4	7,6	87	,890	,049	,781	76,0	9,2	10,0	80	54,2	[illegible]		o.	sw.	sw.	do heavy.	do	do
14	29,999	,198	,801	73,3	4,2	5,0	96	,898	,040	,858	76,9	9,2	10,[illegible]	81	55,2	11[illegible]		o	sw.	W	do light.	do	do
15	,070	,170	,809	73,7	3,6	4,0	98	,819	,070	,879	77,0	8,[illegible]	10,[illegible]	83	56,7	122,0		os	sw	W.	thick. fog.	do.	do
16	,050	,140	,810	73,9	2,7	3,3	97	,819	,000	,930	77,3	7,2	9,3	84	60,1	112,[illegible]		os	sw	W	do	do	cumuli
17	,078	,096	,868	75,5	4,5	5,7	92	,864	,050	,914	77,2	9,3	9,8	81	63,2	115,8		ne	nw.	nw	haze.	do	misty
18	29,060	,157	,903	75,0	6,1	6,5	90	,872	,080	,892	77,7	7,8	7,7	88	61,2	117,8		o.	n.	sw.	clear.	do	cir. cum.
19	,023	,150	,873	75,9	5,7	5,5	93	,918	,914	,004	79,9	11,0	11,4	81	64,2	122,6		nw.	SW.	sw	do	do	cumuli.
20	,018	,128	,890	76,5	6,8	6,4	91	,909	,994	,915	80,2	10,7	10,9	82	60,8	117,6		o.	W	sw	haze.	do	clear.
21	29,989	,068	,906	77,0	4,5	4,5	97	,844	,784	,960	82,4	10,8	11,1	81	62,8	116,5		o.	SW	W	dense fog.	do	do
22	,921	,09[illegible]	,918	77,7	3,8	3 7	98	,808	,785	,023	80,4	9,9	10,5	82	67,1	112,2		os	S	sw	do	hazy	do
23	,923	,98[illegible]	,934	78,3	4,0	3,3	98	,777	,790	,937	81,1	7,8	7,2	90	69,0	115,0		se.	W	sw	clear.	do	misty
24	,829	,868	,941	78,0	4,0	4,3	98	,608	,586	,023	82,0	9,4	9,7	85	65,5	120,0		nw.	S	S	haze.	cumuli.	cumuli.
25	,790	,840	,950	98,5	4,6	5,0	95	,640	,580	,06[illegible]	81,2	9,8	10,4	87	67,2	122,1		S	S	S.	clear.	do	do
26	,764	,79[illegible]	,972	79,2	5,3	5,4	93	,700	,700	,000	80,0	11,4	14,0	79	65,0	188,0		S,	S	sw.	stud.	cir. cum.	clear
27	,891	,980	,919	75,5	12,1	12 4	70	,820	,826	,994	79,5	16,4	16,3	60	61,7			W.	nw	nw	clear	fine.	do
28	,923	,062	,861	75,9	6,9	7,3	89	,786	,797	,989	80,2	16,1	16,6	64	56,0			sw	sw	nw	haze.	clear.	hazy.
Mean	29,968	,172	,816	74,3	6,0	6,2	91	,876	,975	,902	76,6	10,2	10,7	70,5	58,5	115,1		change of monsoon				fine weather.	

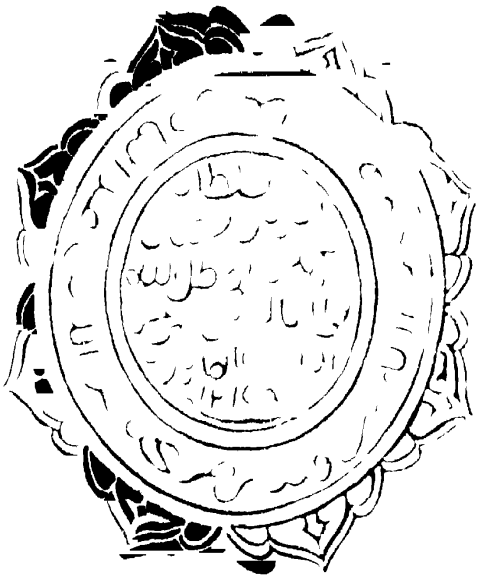
The instruments the same and situated as usual

1



Seal of the present Sultan of Johore or Singapoor

2

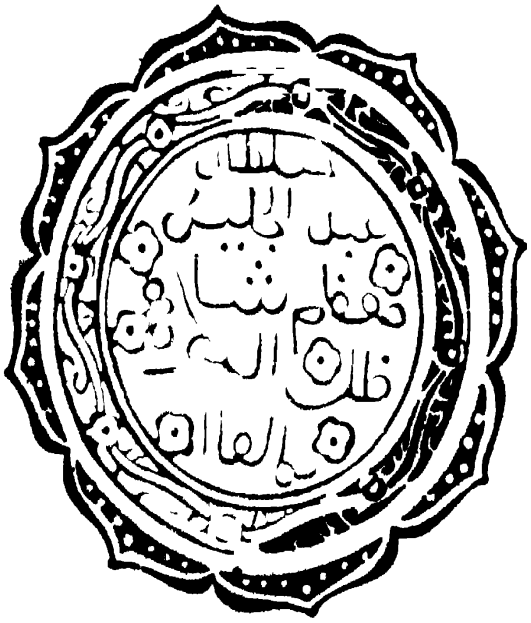


Present Eang deper Tuan Muda of Rumbowe

3

Present Rája dhu Rája of Sungie Ujong

4



Present Eang deper Tuan Besar of Rumbowe

2

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JOURNAL

OF

THE ASIATIC SOCIETY

No. 41.—*May*, 1835.

1.—*Sketch of the four Menángkábowe States, in the interior of the Malayan Peninsula. By Lieut* J. T NEWBOLD, *23rd Regt. Madras Native Infantry*

[See Proceedings of the Asiatic Society, 11th March, 1835]

THE inhabitants of the states in the interior of the southerly part of the Malayan Peninsula, particularly those of *Súngie-újong*, or *Símú-jong*, *Rambowe*, *Johole*, and *Sriminanti*, derive their origin from the parent empire of *Menangkábowe*, in Sumatra, more directly, than the natives of the neighbouring states This peculiarity, with respect to Rambowe alone, has been cursorily noticed by Mr MARSDEN and Sir STAMFORD RAFFLES The former, quoting the Transactions of the Batavian Society, observes, that the interior boundaries of the Malacca territory are " the mountains of Rambowe, inhabited by a Malayan people named *Menangkábowe*, and Mount Ophir, called by the natives *Ganong Ledáng* These limits, say they, it is impracticable for an European to pass, the whole coast for some leagues from the sea being either a morass or impenetrable forest, and these natural difficulties are aggravated by the treacherous and blood-thirsty character of the natives " If we give the author of this unpropitious account due credit for veracity, we must, in justice to the Menángkábowes, and the tract they inhabit, acknowledge at the same time that the progress of civilization has been rapid, and the change in the face of their country corresponding

The forests are, at the present time, certainly thick, and some of the morasses deep, but during a recent ascent to the summit of Mount Ophir, and a journey along the foot of the Rambowe mountains, I found neither the one nor the other impenetrable or impracticable, and experienced nothing but kindness and hospitality from the natives.

Sir S RAFFLES, in a letter to Mr MARSDEN, thus notices the state of Rambowe "Inland of Malacca, about sixty miles, is situated the Malay kingdom of Rambowe, whose Sultán, and all the principal officers of state, hold their authority immediately from Menángkábowe, and have written commissions for their respective offices This shews the extent of that ancient power, even now reduced as it must be in common with that of the Malay people in general I had many opportunities of communicating with the natives of Rambowe, and they have clearly a peculiar dialect, resembling exactly what you mention of substituting the final *o* for *a*, as in the word *Ambo* for *Amba* In fact, the dialect is called by the Malacca people the language of Menangkabowe"

The foregoing remarks apply equally to the three vicinal states, Súngie-újong, Johole, and Srímimánti, and as has been already observed, to Náning. It is also worthy of remark, that in the ancient records of the Dutch, preserved in the archives of Malacca, the natives of Rambowe and Náning are invariably styled "Menángkábowes"

The period when these colonies, from the heart of Sumatra, settled in the interior of the peninsula, is unknown It is generally admitted, that Singapore and the extremity of the Peninsula were peopled by a colony from Sumatra in the middle of the twelfth century, by the descendants of which Malacca was founded nearly a century subsequent, as well as other places on the sea-coast, as Perak, Quedah, Pahang, Tringano, &c

Antecedent to this, according to the best native information, the coasts of the peninsula and adjacent islands were inhabited, though thinly, by a savage race, still known under the name of *Ráyet Laut*, (subjects of the sea,) the Icthyopophagi of the ancients, and termed by VALENTYN, probably from their situation, "Cellátes" The interior was peopled by those singular aborigines, the *Ráyet Utan*, (subjects of the forest,) of whom there are various tribes Those that have hitherto fallen under my observation have all borne the Mongol stamp on their features, though the *Sémang* in the interior of Quedah is said to be characterized by the woolly hair and thick lips, &c of the Papúan

Tradition ascribes the peopling of the interior of the peninsula by the Menángkábowes to a more recent and direct emigration from Sumatra than the one above alluded to In absence of all historical information, the following story, as current among the better informed descendants of this colony, may perhaps not be out of place.

"After SRI ISCANDER SHAH had fled from Singhapura to Malacca, in the seventh century of the Hejira, a Menangkabowe chief, named *Tú Pattair*, came over to Malacca attended by a numerous retinue.

He ascended the river to Naning, where he found no other inhabitants than the Jacoons, (a tribe of the *Rayet Utan)*, and settled at Taboo and took to wife one of the Jacoon damsels, an example speedily followed by his vassals This little colony gradually spread itself over Súngie-újong, Rambowe, Johole, and other places, chiefly inhabited by the aborigines, (who gradually betook themselves to the woods and mountains, as the intruders encroached,) viz Jompole, Sérling, Jellabú, Sriminánti, and Teráchi

In course, of time, Tu Pattair died, and was buried at Lúbo Koppong, in Náning, where his tomb is to this day venerated as a *Kramet*. From these accounts then it would appear, that the present inhabitants of the interior of the part of the peninsula here spoken of, are chiefly de cendants from the Menángkábowes and Jacoons, and those on its coasts, from the Malays who fled from Singhapura, and the *Ráyet Laut*

The new settlers, rapidly increasing in numbers, divided themselves into nine petty states, under as many *Panghúlus* or chiefs, feudal to the Malayan Sultáns of Malacca, and after their expulsion by European powers, to those of Johore, by whom they were consolidated under the name of the *Négri Sambílan*, or the nine territories

The names of these states, and the titles bestowed on their chiefs by the Sultáns of Johore, are as follow, viz Segámet, under ORANG KAYU MU'DA, Johole, JOHAN LE'LAH PERCASSEH, Náning, Mahárájá LE'LAH, Súngie-újong, KLANA PU TRA, Jellabú, AKHIR ZEMA'N, Rambowe, LE'LAH Mahárájá, Cálang or Salengore, TU'NKU CALANG, Ulu Pahang, including Seiting and Jompole, Rájá ANDRA SEKA'RA, and Jellye, under *Maharája* PU'RBA

These titles were hereditary, and their possessors used to present themselves (Mengádap) once a year at the court of Johore.

In a manuscript collection of treaties made by the Dutch in the east, are found contracts principally of a friendly and commercial character, with Rambowe and the *Négri Sambílan*, from 1646 down to 1759 Prior to this period, the Dutch had assumed considerable influence over the nine *Négris* and, with the formal consent of the king of Johore, Sultán ABDUL JALIL SHAH elected a Bugis prince, named DYEN CAMBODIA, as chief over the whole nine Náning had long fallen into the hands of the European Government at Malacca, and Sriminánti rising into importance, tacitly assumed its place among the nine *Négris*

The Menángkábowes, disgusted with the arbitrary proceedings of their Bugis ruler, invited over one of the princes of the blood royal of Menángkábowe from Sumatra, named Rájá MALAYWAR The *Panghúlus* of Súngie-újong, Rambowe, Johole, and Sriminánti espoused

the cause of the latter, whilst the five remaining states took up arms in favor of the former

The Dutch, it would appear from an official communication addressed to the Panghúlu of Náning, in answer to a requisition made by that chief for ammunition to defend himself against the Bugis, did not take any active part in these disturbances, but pithily advised the *Panghúlu* to observe a state of neutrality, and in no case whatever to intermeddle with such intestine commotions, and refusing the supply of ammunition solicited, informed him that, being a subject of the Mátschappy, he had not the slightest cause for fear

In the event, the Menángkábowe claimant, Rájá MALAYWAR, was successful, and DYEN CAMBODIA retired to Rhio, where he died about 1773

The *Panghúlus* of the four states, which had espoused his cause, with the assent of the Sultán of Johore, and the government at Malacca, elected Rájá MALAYWAR as their sovereign, under the title of *Eang depertúan Besar**, renouncing at the same time their allegiance to Johore

Rájá MALAYWAR was the first prince of the Menángkábowe dynasty in the interior

The five other states remained as before, feudal to Johore

The following stipulations, a copy of which is said to be in possession of the chief of Sriminánti, were then agreed on viz that the Menangkabowe sovereign, on all affairs of state, should assemble the four *Panghúlus*, and should submit to a majority, that his maintenance should be supplied equally by the inhabitants of the four states, each house contributing annually one gantam of rice, two cocoa-nuts, and one *súku*

The *Panghúlus* bound themselves to furnish a certain complement of men, arms, ammunition, and provisions, in case of a war, also on occasions of deaths, marriages, circumcision, &c in the royal family, to send, each of them, three head of buffaloes, and to distribute a certain sum in *sadkeh* (alms)

The instalment of the *Eang depertúan Besar* devolved upon the four *Panghúlus*, hence termed *Punghulu Defuntye*

To them also, on the decease of their sovereign, fell the duty of transmitting the news of the event by letter to the Rájá of Menángkábowe, who on its receipt deputed one of the princes of his house, with pompous credentials†, viâ Siac, Malacca, and Náning, to Ram-

* The title assumed by Menángkábowe princes of the blood

† A translation of these credentials is annexed they bear a strong resemblance to the Menángkábowe document published by Mr. MARSDEN.

bowe, where he was met and crowned in state by the four *Panghúlu Defántye* Hence Rambowe is termed *tánnah kréjan*.

From thence the newly elected prince proceeded to his *astánah*, or palace, at Sríminánti, which is the royal burial place, and also called *tánnah mengandong*

Peculiar *Báleis* are elected by the *Panghúlus* in their respective territories, for the reception of their feudal chief, the shape and fashion of which it would be deemed high treason, *Angkara Maháraja Lelah*, to alter

That at Súngie-újong is called *Bálei Melínátong*, from the circumstance of its being built at right angles with the river, and that at Johole, *Balei Bertínkat*, having two stories

The revenue of the four *Panghúlus* is derived from the power they possess in the states under their sway, of inflicting fines and levying discretionary contributions, enforcing gratuitous labour, &c The levying of the tenth on the crops is not in general usage

The real power is monopolized by them, that possessed by the *Eang depertuan Besar*, being only nominal, and depending on opinion

On the decease of the first deputed prince, from Menángkábowe, Rájá Malaywar, Rájá Adil was nominated by his father, the reigning sovereign in Menangkabowe, as his successor, and having arrived at Rambowe, was there duly installed

Rájá Adil died in 1795 or 6, leaving three children, Rájá Assil, Rájá Sabun, and Tuanku Putri, a daughter He was succeeded by Rájá Itam, also deputed from Menángkábowe, and Rájá Assil, eldest son of the deceased Rájá Adil, became the first *Eang depertúan Múda* This innovation was made with the concurrence of the four *Panghúlus*

Rájá Itam died in 1808, succeeded by Rájá Li'ngang Laut, who was the fourth deputed prince from Menángkábowe

In 1812, Rájá Hadji, one of the sons of the *Eang depertúan Múda*, Rájá Assil, carried off by force his sister-in-law, in consequence of the *Panghúlu* of Rambowe's refusing his consent to their marriage on the ground of its illegality A war ensued, in which the *Eang depertúan Muda*, Rájá Assil, who had sheltered the fugitive couple at Sríminánti, took an active and decided part in their defence against the *Panghulu* and *Ampat Súka* of Rambowe The latter then sent to request the co-operation of Rájá Ali* This notorious chief, whose life

* Rájá Ali is about 50 years of age, low in stature, dark in complexion, of a forbidding and rather ferocious aspect, negligent in dress and person, grossly ignorant and superstitious though, for a full enjoyment of the drug opium, he would willingly relinquish his hopes of the *Jannat al Firdous*, in the seventh hea-

has been passed in feuds and bloodshed, and whose ambition has since elevated him to the dignity of the *Eang depertúan Besár*, was the son of the wife of the Menangkábowe prince Rájá ITAM, by her former husband, Rájá HAMAN, brother of Sultán IBRAHIM, late Rájá of Salengore Rájá ALI's mother is the daughter of the second deputed prince from Menángkábowe

Rájá ALI, who had fled to a place called Súngie Nipah, beyond Cape Rachado in Salengore, lent a ready ear to this proposition and repaired to Rambowe, accompanied and supported by the *Dattu Múda* of Lingie His weight turned the scale of events, and the *Eang depertúan Muda*, Rájá ASSIL, after some fruitful efforts at negotiation, retired to Náning (1813); and eventually to Malacca (1814), where he appealed to the then British Resident, Colonel FARQUHAR, nothing however favorable to his cause resulted

Having obtained a private loan of 2,000 dollars in Malacca, he again proceeded to Rambowe, but failing, retreated to Náning, where he died shortly afterwards (1814-15), and was interred at the green knoll on which stood the mosque of Búkit Tútu, near Alor Gájeh

He left four sons and two daughters

Rájá ALI, this obstacle to his ambition being removed, was elected as *Eang depertúan Múda*, under the *Eang depertúan Besár* LINGANG LAUT who died in 1824, leaving two sons, Rájá RADIN, of *Sríminánti* and Rájá U'JONG, both by his wife, the daughter of the Rájá of Jillabú

In consequence of intrigues and dissensions among the four elective chiefs, artfully fomented by Rájá ALI, a successor was not appointed until 1826, when Rájá LABU, a son of the Rájá of Menángkábowe, bearing the ancient credentials from his father, and a letter from the chief of Siac, arrived.

He was preceded by an adherent named Rájá KRE'JAN, and having presented his documents at Malacca, went up to Náning From thence, escorted by the chief of that place, the present *ex-Panghúlu*, he repaired to Rambowe, where he was installed according to custom He married with TUANKU ITAM, daughter of the late *Túan Múda*, Rájá ASSIL, and proceeded to his *astánah* in Sríminánti

ven, with all its black-eyed houris In disposition, he is crafty and determined; taciturn and deliberate in council, but prompt and decided in action—qualities of which I had opportunities of judging during a recent struggle between the Rambowe and Lingie chiefs These, added to his high connexions, which however were not sufficient to give him a lawful title to the eminence which he has attained, mainly contributed to his success

In 1830, in consequence of his countenancing the licentious proceedings of his follower, Rájá KREJAN, and the intrigues of his wife, and above all from the ambitious machinations of Rájá ALI, he was compelled to quit Sríminánti, but shortly afterwards, having gained over to his cause three out of the four elective *Panghúlus*, viz those of Johole, Sríminánti, and Súngie-újong, as also the chief of Jompole, besieged Rájá ALI, in his mud fort of Bander in Rambowe.

Rájá ALI held out resolutely against the formidable confederacy, till at length, through the pacific mediation of the *Panghúlu* of Naning, after having lost one of their principal leaders, who was killed by a cannon shot from one of the old iron guns on the fort, they withdrew their vassals, and retired to their respective states

Rájá ALI, his son in-law, SYED SABAN, and Rájá RADIN, of Sríminánti, shortly after this seized on an opportunity afforded them by the absence of the *Eang depertúan Besar* at Súngie-újong, of surprising Sríminánti, and repossessing themselves of the guns which Rájá LABU had formerly taken from RADIN, under the pretext of their forming part of his regalia *(Kabesáran)*

When tidings of this reached Rájá LABU, he marched, supported by the *Panghúlu* of Súngie-újong, KLANA KAWAL, against Rambowe, but in consequence, it is said, of some horrid cruelties perpetrated upon a female by some of their followers, they were deserted nearly to a man

Rájá LABU did not advance further than Náning whence, after a short stay, he went down to Malacca, and finally, in 1832, recrossed the Straits to Sumatra His adherent, Rájá KREJAN, fled to Paháng, and thence to Múar, and finally, to Johole, where he is now engaged in fruitless intrigues

He assisted the *ex-Panghúlu* of Naning during his rebellion against Government.

Such is the origin and decline of the Menángkábowe dynasty in the interior of the peninsula.

Rájá ALI was elected as the *Eang depertúan Besár* over the four states, and his son-in-law, SHERIF SYED SAABAN, as *Eang depertúan Múda* of Rambowe at Bander, on the 13th September, 1832

The question of succession still remains unsettled among the elective *Panghúlus*, great discordance of opinion prevails, arising principally from the premature and impolitic revival of old but contested rights appertaining to their titles by Rájá ALI and SYED SAABAN. This has led to rebellion, and the strangulation of the tin trade in Súngie-újong, and to bloodshed and disturbances on the banks of the Lingie river, unadjusted at the present moment.

An innate antipathy to innovation, and a secret wish to revert to the Menángkábowe dynasty, prevails more or less throughout the four states, and in case of the demise of Rájá ALI, if not previously, a severe struggle may be expected between the partizans of the *Eang departuan Muda*, SYAD SAABAN, on the one hand, and the advocates for the *addat dhaulu*, or ancient custom, on the other

SYED SAABAN, by no means insensible that in this case, the best way to secure an advantageous peace is to prepare betimes and vigorously for war, has been for some time past actively engaged in strengthening Sempang, a post advantageously situated on the apex of the delta, formed by the junction of the Lingie and Rambowe streams, and about six miles from their debouchément into the sea Here he has lately been joined by a chief from Sumatra, with a numerous train of followers.

APPENDIX

Translation of the Credentials called the Tromba Menángkábowe ترومبا مناڠكابو *brought over from Sumatra by the last deputed prince Rajá* LAB'U

The seals at the top are placed from the right to left, according to the order of precedence of the princes whose titles they bear, all feudal to Menángkábowe

According to the etiquette of Malay letter writing, the "place of honour," for the impression of the seal, is about the commencement of the epistle, to its extreme right, and on the highest *Mistar* In letters from a subject to a sovereign, the impression is made near the foot

6	5	4	3	2	1
Sultán Raja Magat, from Rogum, son of the Eang departuan of Paggaruyong	Sultan Berkumbah Puteh, from Sungie Paku, the son of, &c	Sultán of Indrighiri, Sultan Sri Kahil son of, &c	Sultan of Jambie, entitled Baghinda Tuan, son of, &c	Sultan of Palembang, son of Sultan Indra Rahim, son of, &c	The firman faith, by the grace of Allah, the great Sultan Maharaja dhiraja, son of the deceased, Sultan Abdul Jahil Muazzem

11	10	9	8	7	1
Sultan Tunku of Siac, son of, &c	Sultan of Bintan, entitled Sultan Mohikat son of, &c	Sultan of Achin, entitled Sri Paduka Berpakat Rahim, son of, &c	Sultan of Priamah, entitled Maharaja son of, &c	Sultan of Indrapura, entitled Sultan Mahomed Shah, son of, &c	The firman faith, by the grace of Allah the great Sultan Maharaja dhiraja, son of the deceased Sultan Abdul Jahil Muazzem

2 Sultán Indrá Rahim was the first monarch of Palembang, and grand-father of the Eang departúan Makat Denam, brother of Baghinda Abias

3 Baghinda Tuan was the founder of the dynasty of Jambie, which extends to Chi Jambie, of nine districts

4 Sultán Sri Kahil was the founder of the dynasty of Indrághiri, which extends to the sea

5 Sultan Berkumpa Puteh was the founder of the dynasty of Súngie Pakú, which extends to Bandar Sapuloh.

6 Rájá Magat was the founder of the dynasty of Rogúm, which extends to Kúri, in the Mampawa territory

7 Sultán Mahomed Shah was the founder of the dynasty of Indrápurá, which extends to Moco Moco

8 Sultán Maháiajá was the founder of the dynasty of Priáman, which extends to Tiko and Kakanuh

9 Sri Paduka Berpakat was the founder of the dynasty of Achin, which extends to Telabu and Battu Barra

10 Sultán Mohíkat was the founder of the dynasty of Bintan, extending to Batavia

11 Sultán Suanku was the founder of the dynasty of Siac, which extends to Patta Pahan, to Pulo Sawan, and Kasang Bunga

" Oh God, look down upon the greatest of Sultáns, prince of great men, the shadow of Allah in this world, renowned among Arabs and barbarians inhabiting this material world, (created for) the children of Adam Oh Lord of the kings of the earth, it hath been declared in the Korán that every day and night is to be accounted as void of light, until the dawning of the true faith in the appearance of MUHAMMED SEYD-AL-MURSALIN, the last of the prophets. Amin ! Oh God of worlds

The Almighty hath caused this firman to appear in the Korán in respect to princes, viz " I have created man infinitely superior to the angels, the sun and the moon I have given him sovereignty on earth. I have created genii and mankind, in order that they may worship me."

The Almighty caused the dry land called Púlo Langkáwi to descend between Palémbang and Jambie, as the place of residence for the original sovereigns of the world, viz the descendants of Sultan HIDAYET ALLAH TA-ALA, whom he had brought down from the clouds

Among these descendants was Rájá ISCANDER zer Alkurnein, whose country is Srang, and who is possessor of the iron lock intensely green, sometimes assuming a red, sometimes a yellow, and sometimes a white hue, and, in short, possessing all colours so vividly as to dazzle the eye of the beholder, this forms part of the *kabesáran* (regalia) of the three royal brothers, who scatter profusely their justice and munificence to all the slaves of Allah, and to all princes who are feudal to them and derive favor and advancement from the beloved of Allah, MUHAMMED These three Sultáns were very wise and faithful protectors of all the slaves of Allah

It hath been declared that the fountain in paradise, *Jannat unnahim*, causes the young shoots to spring up from within the earth, in like manner, the slaves of Allah exist by inhaling the fragrant odours emanating from the glorious *Bálie* (a sort of hall of audience) of their prince.

Odoriferous as ambergris and musk are the prosperity and power of the three royal brothers, viz the Sultán of Rúm, Sri Maháráiá

ALIF, the Sultán of China, Sri Mahárájá DEPANG, and the Sultán of the Golden Island, in the territory of Menangkabowe, Sri Mahárájá dhi Rájá BERDOULET Amin, Oh God of worlds!

Whereas the following are declared to compose the *kabesáran* (regalia) of his majesty the lord of the state of Menangkábowe, viz. the diadem of the prophet SOLOMON the web called *Songsang kála*, which weaves itself, a thread every year, until the completion of the duration of the world The wood *Kayu Gámet*, which is divided into three portions, one of which is in the possession of the King of Rúm, the other in that of the King of China, while the third remains with the King of Menangkabowe The ratan termed *Mánno ghiri*, which erects itself The *Párang* (chopper) of gold The *Chongka Chongkye* (a tray with a pedestal) The mass* of gold, *Kédah Allah*, (lit the tinder box of Allah) resembling a man in shape The gold *Jattah Jattí*, to be suspended across his shoulder The tree *Naga*† *Tárin*, studded over with precious stones and rubies The *Sépit*‡ *Pínang*, (betel-cutter,) *Kapala bara*, which performs its office spontaneously The *Choie Siméndang ghiri*§, with one hundred and ninety notches, occasioned by the wounds it inflicted on the serpent *Sicatimána* The mountain *Bongsyé*, from whence the Sultán ascends to the fiery mountain, and by whose supernatural influence the rivers which flow from it possess rocks of gold, and waters emitting odours delicious as those of flowers The lance whose shaft is of the *Sággar santan* The spear called *Sambárah*, with a sheath of *Gárda* wood, on which is inscribed a passage from the Korán The kus *Allang bára* The mat composed of *Sálang* leaves, which is worn as an ornament to the head by Mahá RA'TE, but forbidden by Mahá RUNJUT, who were cotemporary with the origin of this country

The elephant *Sacte* The fresh-water sea extending a day's sail The mountain emitting flames of its own accord, where grow the plaintive bambus, which entrap wild birds by the fascination of their melody The petrified cotton The *Gándang Valigúri* (a sort of drum) The *Gong jeyátan* The *Gong semándrang*, the sound of which reaches to the clouds

* This mass of gold, according to the information of a native of Manangkabowe, was what remained after the making of the crown of one of the ancient princes of that empire

† The *Nága Tárin* is supposed to be a tree transmuted into gold.

‡ This instrument is said to be endowed with the faculty of ascending the Areca trees, and cutting the nut without human assistance

§ Vide Sejára Maláyu for an account of the combat which terminated by the serpent's being cut into three parts by the invincible sword of Sangsapurba, traditionally the descendant of ALEXANDER the Great, and founder of the dynasty of Menángkábowe.

The hall of audience *Bálie*, whose columns are of the *Selátang* (a species of lofty nettle), and the beams of *Lendang* root The drum *Púllut pulut*, headed with the skins of lice The horse *Sambaráni**.

The bell *Samédro Sámbang háte*, whose perfect sound from the left daily summons petitioners to the right of the imperial throne

The buffalo *Sibénoang Sácti* The cock *Biang Sangunání* The well *Sikátang* The cocoanut *Níra Balie* The black *Sanghúdi*, which is produced spontaneously The paddi, *Sitanjo Báni*, on which his majesty the Eang depertúan feeds at mid-day. The paddi called *Sarámpun déndam kamara* The flower *Srí*, the odour of which extends a day's journey, it is sown, grows up, produces leaves, flowers and brings forth fruit in the space of a single day, and the azure *Champaka*.

Such form the *Sabesáran* of the *Eang depertúan* of Menángkábowe, the Sultán who reposes cradled in the east, and on whose arising from slumber the *noubet* is sounded. The Caliph of Allah, his majesty the *Eang depertúan Sáti*

These are the credentials of the beloved grandson of the *Eang depertúan* of Paggarúyong

The bearer of this friendly document must be assisted and well entreated both by sea and land whenever encountered, for the High God hath said, " First set your trust on me, next on MUHAMMED and doubt not "

Do ye, therefore, all our children and grand-children, noblemen, merchants, and nakhodas, agree in standing by and upholding our ancient usages, which have been handed down by our forefathers,

Should this document be brought to Siac, Nila láwan or Patápaán, to Campar kiri or Campar kánan, molest not the bearer by sea or by land These injunctions extend to Palémbang, Indraghiri, to Rogum, to the villages and forests of Tambusai, to Battu Bara, to Pulo Penang, to Malacca, Qèdah, Java, Batavia, Susu, Telabúah, Guttar, and Bencoolen, which is subject to the Company, together with other places on the west coast of *Pulo Andalús*

Let us all, therefore, to the utmost of our power, place firm confidence in the great and glorious God, according to our solemn oaths, and the oath " *Bisa Gawye*" of our ancestors

Should any person therefore molest the bearer of these, he shall draw down on himself the ban of the *Eang depertúan* of Paggarúyong; his crops shall fail, and his subjects shall not thrive, but on the other

* The Sambaráni سمبراني is a fabulous horse, celebrated in Malay romance, generally said to be winged.

hand, whoever receives the bearer with kindness, shall be rewarded with abundant harvests, and increase of subjects, and whithersoever he may go and settle, prosperity shall attend him, whether on the coast of the Island of *Púlo Péracha* or any other place by sea or by land

Oh Lord of lords and Helper of helpers, the most wise God "

II —*Comparison of the Heights of the Barometer, with the Distance of the Moon from the Celestial Equator* *By the Rev* R EVEREST

[See Proceedings of the Asiatic Society, 6th May, 1835]

In my last paper, I shewed, that on an average of ten rainy seasons, the daily amount of Rain fall diminished, as the declination of the moon increased, until it reached between 10° and 15°, but that after that distance, the reverse took place, and the amount of Rain-fall increased as the declination increased The general average of the 10 years for every 5° distance from the Equator gave the following results

Declination	0°	5°	10°	15°	20°	25°	from the Equator
Inches of Rain	121	271	256	259	347		

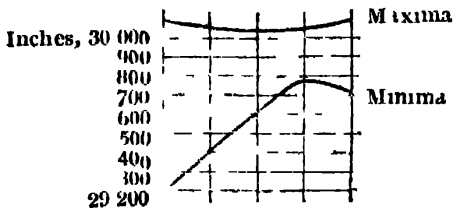
It was but natural to suppose, that the height of the Barometer would vary in a similar manner, or rather the reverse, i e as the one increased, the other would diminish, and vice versâ—with this expectation, I made a Table of the heights of the Barometer, as I had before done of the Rain-fall The 4 P M observations were selected from the Registers, as being nearest the time of noon at Greenwich, when the declination of the moon was taken, but I did not at first obtain results so satisfactory as I had expected On taking the general average of the 10 years, a considerable depression (as much as 040 in) appeared, when the declination was greater than 20°, but from that to the equator, the heights were irregular, and nearly on a level. But in examining the Registers, for the purpose of making out the tables, I could not help observing, that though all the greatest depressions coincided (or nearly so) with the times of the moon's maximum declination, yet that many of the greatest elevations held a similar situation The inference of course was, that a principle of compensation was somehow or other at work. I now became acquainted with the opinion of an eminent philosopher, that any elevation of the barometer in southern latitudes must have the effect of producing an equal depression in a corresponding northern latitude. If we only generalize this assertion a little, and say, "that any de-

pression in any particular spot must have the effect of producing an elevation somewhere else," then, we may see why in any one place (taking the year throughout) the maximum elevations and minimum depressions on the same days of the moon's courses coincide, &c But it is straying from the subject, to attempt to reason upon phenomena, while we are as yet only in the threshold of our inquiry

In pursuance of the idea I have above mentioned, I next took the maximum elevation that occurred in each successive division of 5° of the moon's distance from the equator in each year, and then took the general average of the whole 10 years I did the same with the minima, and obtained the following General Average

Declination	20°	15°	10°	5°	0° Equator
Bar max inches	30 032	033	026	026	022
Do minima,	29 236	313	355	379	375

These two series of numbers would very nearly form two curves, with their convex surfaces to each other, thus



[We are sorry to perceive that the diagram which was copied from the rough sketch in the MS without adverrence to the text, does not faithfully represent the figured statement, but the author's intention will be easily understood —Ed]

I will now leave this part of my subject, as I shortly expect some further Registers and Nautical Almanacks for comparison, and I will hereafter revert to it more in detail, and make out a Table more at length, shewing the results of each year I have brought it forward now somewhat prematurely, because from sickness and consequent removal from home, my labours must be suspended for some months, and I am desirous before that happens, to bring forward the following note, which I humbly hope may not be without its use to a large and important class of the community This was the end which I proposed to myself in commencing a long and laborious investigation, and, if I attain it, in any degree, my purpose will have been more or less answered.

Note.

Shewing, that the greatest depressions of the Barometer do not, (as some have conjectured,) coincide with the days of conjunction and opposition of the moon, neither with the days of her perigee, but that they coincide, or nearly so, with the days of her maximum monthly declination

For Example

In the ten* years of which the barometrical daily changes have been re-

* The ten years alluded to are 1823, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834.

gistered at Calcutta, there are (6) *six* instances in which the barometer has fallen below the height of 29 200 inches —I here add the dates of each instance, with the heights of barometer and declination of moon three days before, and three days after, also the day of nearest new or full moon The hour of 4 P M has been chosen, as corresponding better than any other to the hour of noon at Greenwich, at which time the declination of the moon was taken

1823 August	Bar 4 P. M	Inches Rain	Moon's Dec ° ′
5th, noon, Perigee			
6th, nearest			
12th,	29 321	.	18 29 S
13th, ..	313		22 8
14th, .	276		24 41
15th,	180	0 52	26 3
16th,	388	3 32	26 12
17th, . .		2 56	25 9
18th,	526	3 00	22 59

Note.—The real max on 15th, at midnight, 26° 16′

1829 June, 21st, noon, Perigee 30 days, 16 hours, new moon			° ′
27th, .	29 185	6 20	14 13 N
28th, ...	407		16 34
29th,	191		18 0
30th, . .	474		18 27
July			
1st,	454	0 16	17 55
18th, midnight, Perigee			
30 days, 5 hours, new moon			
26th,..	29 421		17 36 N
27th,..	382		18 20
28th, . .	298	0 72	18 6
29th, . . .	159	0 28	17 0
30th, . ..	301	0 58	15 6
31st,	445	0 15	12 33

The declination at noon, 27th, is, 18° 20′ 5″, and the declination, 27th, at midnight, is, 18° 20′ 22″, so that the real maximum is within 1 day, 12 hours of the depression of Barometer

1833 May, 24th, noon, Perigee 19 days, 1 hour, new moon	Barometer	Rain	Moon's Dec
19th,	29 500	.	15 49 N
20th,	376	0 98	19 11
21st,	28 868	2 90	21 30
22nd,	29 300	5 34	22 32
23rd,	425		22 7
24th,	340	.	20 7

days, 6 hours, Greenwich time.

1830 May, 20th, midnight, Perigee 21 days, 19 hours, new moon.	Barometer 4 P M	Rain Inches	Moon's Declination.
21st, ...	29 452		13° 5′ N
22nd, ...	514	.	16 4
23rd,	487		17 56
24th, . .	427	0 10	18 36*
25th, . . .	306	3 00	18 7
26th, .. .	107	4 22	16 36
27th, ...	·434		14 15
28th, ...	444		11 18
29th, .. .	521		7 55

Note.—The greatest depression of barometer occurred at noon on the 26th,

when it stood at 29 008, and reducing this to the level of 4 P M, by subtracting (087), the average monthly difference between noon and 4 P M, there is left 28 921 inches for the theoretical height of Barometer at that time Noon 26th is, of course, by Greenwich time, 25 days, 18 hours, nearly

1834 August 7th, midnight, Perigee 4 days, 18 hours, new moon.

	Barometer	Rain	Moon's Dec
1st,	29 178		22° 40′ N.
2nd,	110	2 20	24 6
3rd,	28 820	4 10	21 11
4th,	29 344	0 70	22 47
5th,	368		19 55

The real maximum is on the 2nd, nearly at midnight, or 2 days, 13 hours, Greenwich time

The Perigee is evidently out of the question The comparison between the time of conjunction, and that of moon's maximum declination, with the barometric minimum, may be more clearly stated in a table, shewing the distance of each of the former in days and quarters of days from the latter, thus

	Distance of Time of moon's maximum declination		Time of new moon		
	Days	Qrs	Days	Qrs	
1823, Aug 15th,	0	2	7	0	From the nearest barometric minimum
1829, June 27th,	3	0	3	3	
1829, July 29th,	1	2	1	1	
1830, May 26th,	1	3	4	0	
1833, May 21st,	1	1	2	0	
1834, Aug 3rd,	0	2	1	3	

Making the same allowance as is done in the case of the tides, viz three days before, or three days after the event, for a coincidence, all these instances of moon's maximum declination may be considered as coincidences with their respective barometric depressions it is evident, that the times of conjunction cannot be so considered. We must observe that the only instance of great separation between the time of moon's maximum declination and the barometric depression, was in 1829, when the maximum declination of moon was at its least (not above 18° 20′), and consequently only faintly felt

It now only remains for us to notice the minor barometric depressions, which have occurred during the same period, and we will first take the minima of the years which were above 29 200 inches. From the increase of rain, which occurs when the moon gets within 10 degrees of the equator, we might have supposed that the next lowest depressions would probably be found there—and this turns out to be the case I here subjoin the details

1827 June	Barometer 4 P M	Rain Inches	Moon's Declination.
28th,	29 314	.	9 40 N
29th,	222	4 40	5 15
30th,	·207	3 72	1 31 N
July 1st, .	390	0 38	2 51 S

Nearest new moon, June, 23 days, 22 hours, say 24 days, or 7 days' distance from the depression.

1832 October.	Barometer 4 P M	Rain Inches.	Moon's Declination.
5th,	29 763	..	15 51 S.
6th,	688	1 71	12 31
7th,	201	3 54	8 34
8th,	696	1·65	4 11 S.
9th,	697	..	0 28 N

Nearest full moon, 9 days, 7 hours, or 2 days, 7 hours' distance from the depression

The minimum depressions of the remaining years are still higher, and irregularly placed with regard to the moon's declination, as follows

1826 July	Barometer 4 P M	Rain	Moon's Declination
27th,	29 317	..	16 40 N
28th,	290	.	19 5
29th,	313	0 06	20 41
30th,	361	1 08	21 22
31st,	487		21 3

hours, or 6 days, 7 hours' distance from the depression

1828 July	Barometer 4 P M	Rain	Moon's Declination
21st,	29 373	1 07	14 17 S
22nd,	352	0 12	16 47
23rd,	352	0 08	18 22
24th,	394	0 84	18 48
25th,	451	0 78	17 58

Nearest full moon, 26 days, 10 hours, or 3 days, 10 hours' distance from the depression

1831 July	Barometer	Rain	Moon's Declination.
22nd,	29 196	0 12	19 26 S
23rd,	492		19 31
24th,	516	1 35	18 40
25th	451		16 55
26th,	379	0 38	14 19
27th	291	.	11 0
28th,	302	0 25	7 6

Maximum declination, 4 days' distance from depression

Nearest full moon, 21° 9′, or nearly 2½ days, distance from depression

There are yet some further minor depressions, which we must not omit, as though they are not the minima of any particular years, they are much lower than some of those we have been considering I subjoin the details of all under 29 300 inches

1823 June	Bar	Rain	Moon's Decl ° ′
8th,	29 403	Unknown,	25 47 S
9th,	430	.	26 12
10th,	359	.	24 41
11th,	267	.	21 25
12th,	274	.	16 48

Nearest new moon, 8th

1823. July	Bar	Rain	Moon's Decl ° ′
16th,	29 282	Unknown	19 43 S.
17th,	255		23 0
18th,	311	..	25 13
19th,	353	.	26 15
20th,	355		26 4

Full moon, 22nd

1827 June	Bar	Moon's Decl ° ′
17th,	29 391	6 18 N.
18th,	24[illegible]	10 12
19th,	252	13 36
20th,	404	16 22
21st,	459	18 25
22nd,	509	19 39
23rd,	473	20 2
24th,	486	19 31

Declination at time of depression, 10° 12′. Rain, 1 90.

1827 July	Bar	Moon's Decl. ° ′
16th,	29·271	12 33
17th,	259	15 33
18th,	313	17 49
19th,	312	19 18
20th,	331	19 55
21st,	·396	19 41

Rain 1 66.

1829 June	Bar.	Moon's Decl ° ′	1832. July	Bar.	Moon's Decl ° ′
3rd, ...	·314	18 20	26th, .	29 360	20 50
4th,	29 292	17 28	27th,	302	19 26
5th,	253	15 45	28th,	296	16 39
6th,	494	13 21	29th,	371	12 48
Rain, 2 18			Rain, 0 87		

1834 June	Bar	Moon's Decl ° ′	1834 July	Bar	Moon's Decl ° ′
19th, .	29 287	18 53 S	24th,	29 398	11 1 S
20th,	230	22 4	25th,	298	6 22
21st, .	·342	23 53	26th, .	370	1 32
22nd, .	418	24 16	Rain 0 75		
23rd, .	472	23 15			

Summary of Depressions *Remarks*

6, greatest, (all below 29 200) In one instance only, 3 days between time of dep and max decl

2, lesser, (between 29 200 and 29 220) Both within 10° of equator

10, least, (between 29 220 and 29 300) Of which, in six instances, the time between maximum declination and depression is not more than two days, in one instance, three days, in one instance, moon's declination was less than 10°, two instances, irregular, one, 12′ more than 10° from the equator, one (291), of four days' distance between time of depression and maximum declination I must now end this paper, begging permission to resume the subject, as I may find opportunity to do so

ROBERT EVEREST

It may not be deemed out of place to notice here the amount of wind and rain, which accompanied each depression In five cases out of the six, a depth of rain of from 6½ to 9 inches was deposited within three days of the depression In 1823, no notice is taken of the wind in the Register, but the Kedgeree report states, " light airs" on August 15th, (the day of the depression,) and " hard gales from southward and eastward" on the (16th), the day after The Gazette laments inundations in the upper parts of Bengal, loss of life, villages swept away, and devastation of the crops In June, 1829, the Register notes on the day of depression " violent wind all night, with thunder and lightning " In May, 1830, and May, 1833, were violent storms or hurricanes, the effects of which must be yet remembered by most of us. In August, 1834, was a heavy gale of wind In July, 1829, alone, neither the quantity of wind nor of rain appears to have been great The former is not noticed, the latter was less than 1 75 inches We may remark too, that in the first instance alone, viz that of August 15th, 1823, was the declination of the moon south. The rest have all occurred between the 20th May and 4th August, or from 31 days before the summer solstice, to 44 days after it

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III.—*Collimation Error of Astronomical Instruments. By* J. G. TAYLOR, *Esq. H. C. Astronomer, Madras.*

Ten years have now elapsed since Captain KATER's plan for determining the position of the line of collimation by means of a floating collimator was brought before the public, and his ingenuity rewarded by the gold medal of the Royal Astronomical Society. It has happened, however, with this, as with many other great and good inventions, which are true in theory, that the application to practice is attended with so much uncertainty, as almost completely to render the plan unavailable; hence it is, that the results of observations made with the assistance of the floating collimator (if any there be) have never yet been made public. I offer these remarks with a view of saving the amateur astronomer from the vexatious disappointments which he may expect to meet with in the employment of the floating collimator; and, at the same time, of offering a plan to supersede its use, which is totally free from any sort of uncertainty, and can, moreover, be applied with much greater facility than the floating collimator; the plan in question consists of *making the telescope a collimator to itself*, by viewing the *image* of the wires reflected from a basin of quicksilver, at the *same time* that the direct image is viewed in the ordinary way through the eye-piece; to accomplish this, it is only necessary to exhibit a bright light behind the wires, so as not to interfere with the eye of the observer when applied to the eye-piece—in the case of the Madras Mural Circle, to which this principle was lately applied, I introduced a plain silver speculum into the eye-piece of the telescope between the eye glass and the wires, having its polished surface directed towards the wires; the speculum was suspended in the cell of the eye-piece by two screws, allowing it to revolve on them as an axis, and was furnished with a small hole in the centre, through which the wires in the telescope could be seen; the telescope being now directed to the nadir to a basin of quicksilver, the speculum was turned on its axis until a ray of light (admitted through a hole about $\frac{1}{10}$ of an inch diameter, drilled in the side of the telescope), was reflected from it, and made to fall perpendicularly upon the wires (an operation occupying about five minutes to adjust, and not afterwards requiring alteration); by this means, in addition to the ordinary direct image of the horizontal wire, a reflected image was obtained, situated as much to the north of the nadir as the other was to the south, and vice versâ; nothing more was necessary now than to clamp the circle and bring the wire to cover its reflected image by the tangent screw, when the reading gave (the circle being adapted to measure north polar distance) 180° + colat + E, subtracting the two former or 256° 55′ 50″ E, the error of collimation, became known. Since establishing the above mode of observation, which I

propose to call the *reflecting collimator*, the error of collimation (or index error as it is generally called) has been read off five times every day, viz at 6 A M, at noon, at 6 P M, at 8 P M, and at midnight, taking the mean of these, the error of observation is necessarily very small, and the effect of any accidental difference of temperature in the room, which might alter the figure of the circle at any one time of the day, is at the same time greatly diminished

To shew to what extent this mechanical measure, as it may be termed, can be depended upon, I here subjoin the result of the last ten days' observation compared with the index error determined by astronomical means, thus

INDEX ERROR OF THE MADRAS MURAL CIRCLE

		By the Reflecting Collimator		*By Astronomical Observation*		
		No of Obs	Index Error	No of Obs	Index Error	Difference
1835			′ ″		′ ″	
Feb.	21	5	—2 27 36	6	—2 27 39	0 03
	22	5	27 92	8	27 73	0 19
	23	5	27 64	9	27 45	0 19
	24	5	26 46	7	26 74	0 28
	25	5	27 50	7	26 50	1 00
	26	5	27 22	6	27 34	0 12
	27	5	27 28	9	27 10	0 18
	28	5	26 80	8	27 54	0 74
March,	1	5	26 91	9	27 31	0 40
	2	5	26 83	9	27 54	0 71

As a further proof of the efficiency of the reflecting collimator, I may adduce the result of observations made at this observatory with the transit instrument Here we read off twice the sum of the errors of level and collimation, either of which being known leaves us acquainted with the other In the case of the Madras transit instrument, which is furnished with a micrometer, giving motion to a wire parallel to the vertical wires, I have always preferred measuring the error of collimation, and computing the corrections rather than attempting by mechanical adjustment to get rid of it, as is usual with small instruments, and, on the same principle have always allowed the axis to take up its own position with regard to level, hence we have only to apply to half the micrometer-reading of the reflecting collimator, the error of level with the proper sign, and the sum or difference, as the case may be, gives the error of collimation, thus

		Reflecting Collimation, or L+C	*Spirit Level,* or L	*Error of Collimation* by Refn Coll	*Ditto* by Inversion	Difference.
1835		″	″	″	″	″
Feb	7	4·34	2 60	1 74	1 55	0 19
	9	4 22	2 97	1 25	1 20	0·05
	11	2 92	2 74	0 18	1 00	1 18
	11	9 80	2 74	*7 06	5 58	1 48
	12	9 28	2 41	6 87	6 73	0 14
	13	9 18	2 61	6 58	6·62	0 04
	16	9 83	2 42	7 41	6 29	1·12
	17	9 97	1 63	7 34	7 17	0 17
	18	9 89	2 04	7 85	7 20	0 65
	20	9 37	2 70	6 67	7 19	0 52

I increased the collimation error

The above readings of the reflecting collimator are the result of three measures occupying at most about as many minutes to make, and the collimation error by inversion is from one inversion only As regards the wants of the amateur astronomer in India, the reflecting collimator will I apprehend be eminently serviceable, if (as is very often the case) the level attached for levelling the axis is dull in its movements, or should it unfortunately be broken, and should moreover the observer's situation preclude the erection of a mark to examine the collimation error—nothing more is necessary than a basin of quicksilver and an eye-piece fitted up as above

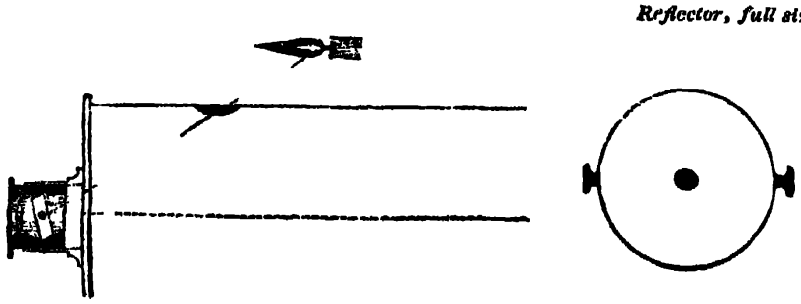
We will suppose that on looking into the eye-piece the centre wire and its image are *both seen*, and that the reflected image appears 10 diameters of the wire by estimation to the *east* of the direct image, this may arise from error of level or error of collimation, or from both, to decide this question, we must invert the axis and again estimate the distance between the direct and reflected images of the centre wire—suppose the reflected image to be now situated 6 diameters of the wire to the *west* of the direct image we have,

$2\ (L+C) = +\ 10$
$2\ (L-C) = -\ \ 6$ reckoning + for eastern and — for western deviation from the sum we find $L = +\ 1$
———difference, $C = +\ 4$

Shewing that the east end of the axis is too high by a space corresponding to the thickness of the wire, and that the centre wire must be moved towards the east four times its thickness Other instances might be adduced of the efficiency of the reflecting collimator, but the above will I apprehend be considered sufficient

A mere glance at the accompanying figure will explain all that is necessary to the construction, which I need hardly remark can be performed by any common workman.

Reflector, full size



Madras Observatory,
5th April, 1835

[The elegance, the simplicity, and the great practical accuracy of the method described above by the Madras astronomer, will we have no doubt recommend it to very general adoption.—ED]

IV —*On the Strata of the Jumna Alluvium, as exemplified in the Rocks and Shoals lately removed from the bed of the river, and of the sites of the Fossil Bones discovered therein By Serjeant* EDMUND DEAN

[The Specimens alluded to are deposited in the Society's museum]

It has always been a matter of speculation with me, since my first acquaintance with the Jumna, that presenting the obstacles to navigation, which it, undoubtedly, does at the present day, after seven years' application of great talent, and a very considerable expenditure, what a gigantic work it must have appeared at its commencement Experience, however, and a careful research have confirmed me in the opinion, that many of these impediments in one shape or another, were then, and are now, not only such as, their existence once known, could easily be removed, but there is every probability of some of the most dangerous of them being at this instant in a state of active formation and increase

Taking a general view of the whole, as they occur between Agra and Allahabad, I have found it convenient to class the obstacles most to be dreaded by navigators, as follows

1st, Clay-banks or shoals, 2nd, Rocks, 3rd, Kankar shoals, and 4th, Sunken trees This classification is adopted with reference to the supposed degree of danger to the navigation that may be attached to each, a detailed description of which I have endeavoured to arrange in this order

The grand and perfect section of *the Delta of the Jumna and Ganges*, (or I should rather say, from experience lately gained to the westward, of the immense general alluvium of Hindustan, opened by the channel of the former,) presents a regular alternating stratification of the different modifications of which the general Dúab alluvium is formed, which consists (as far as the section has allowed me to examine), of five distinct strata, interspersed with imbedded substances which from their irregular growth, positions, and occurrence, cannot be classed among the more regular strata The regular strata occur as follows, namely, 1st, Superior sandstone, 2nd, Shale, and 3rd, 4th, and 5th, Alluvial, (fig 1 Pl XIII)

Only two strata of the superior sandstone occur within the above bounds that I am aware of The elevated positions of both decidedly have been produced by volcanic irruption, and will be described under the head of rocks.

The Shale which approaches nearest to *d*, var of A in the first division of McCULLOCH's synopsis, described as passing into clay, appears very seldom *Note* The specimens marked " *y*, 1, 2, and 3," all stand the

test of adhering on being applied to the tongue or lips (Specs *y*.

1*st* *Alluvial Clay*, corresponding with *a*, var of C, first division, is much intersected with seams of kankar ⅜ of an inch in average diameter, colour dull yellow, grey, and dirty white, and is interstratified with beds of nodule kankar varying between 20 yards, and half a mile in length (as exposed by the river), and from one foot to 15 in thickness

2*nd* *Alluvial Compact Sand* would form a var *e*, of C, first division, does not agree with *c*, of the same division, as there is no portion of clay, and it is only partially consolidated by the pressure of superincumbent strata It occurs both above and below the 1st alluvial stratum from 3 to 18 inches thick, and of indefinite length and breadth, in some places a few yards, in others several miles

3*rd* *Alluvial Clay*, with a large proportion of sand *b*, var of C, first division of Mr McCULLOCH's synopsis This stratum is frequently varied in colour, giving it an appearance of divisibility, but on examination, this difference will be found to extend to colour only, which varies in many places between dull yellow and grey

1*st* *Of Clay Banks or Shoals*

These banks (fig 2 Pl XIII) so justly dreaded by navigators of the Jumna, are quite as unwelcome to those engaged on the Jumna works, as their removal is both troublesome and expensive They are formed of isolated and detached portions of the 1st alluvial stratum, by an accumulation of sand forcing the stream into a new channel, formed by the whole of the 2nd and 3rd alluvials, and least tenacious parts of the 1st alluvium, having been swept away at high levels, leaving such portions of the last as were sufficiently compact to withstand the force of the stream, which are generally those where the natural toughness of the clay is increased by the seam kankar before mentioned, (spec *x*,) which runs in every direction through it, literally lacing it together, and giving the clay a durability which the action of the strongest current has, perhaps, less effect upon, than it would have on a similar mass of stone of average texture

The stream, which is generally confined in its course by these obstacles, rushes past them with violence, polishing (as much as clay is capable of such an operation) all those parts exposed to its action

It was in the crevices formed by the washing away of the softer parts of a bank of this description, (figs 1 & 2, Pl XIV) that the specimen of fossil bones, which were, I believe, presented by Capt SMITH, and the tulwar by [illegible] being removed [illegible] two to four feet of kankar, of the conglomerate formation [illegible] wish this to be remembered, as I consider finding the latter in [illegible]

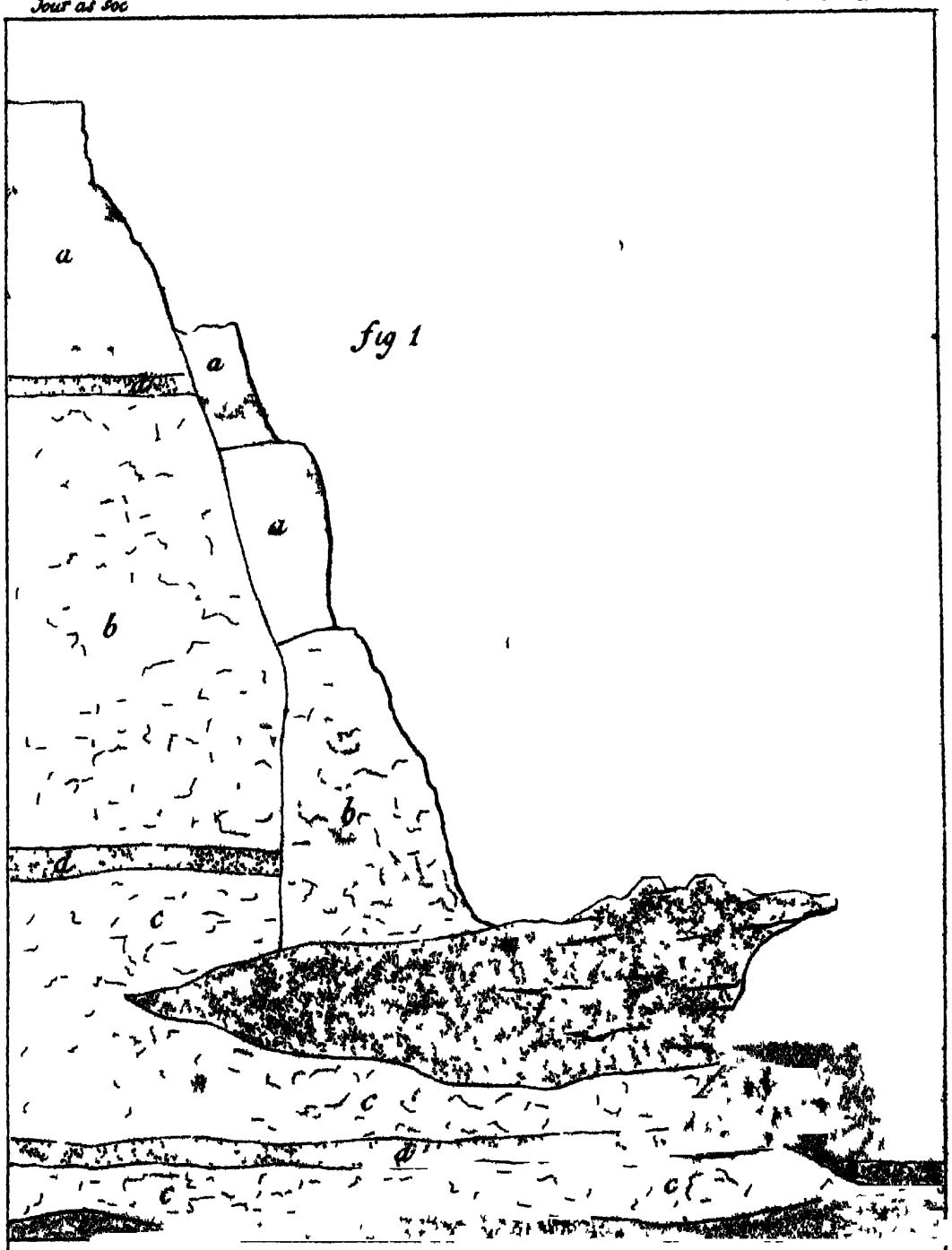


fig 1

fig 2

situation as peculiarly corroborative of my remarks relating both to these banks and to the kankar formation. No instance, however, has ever been known of petrified or fossil animal, or vegetable remains, having been found fairly imbedded in or under this stratum.

Another formation of these banks is occasioned by the current sapping the high and abrupt banks of the river, by washing out the strata of compact sand, when such large masses of stiff clay are detached and thrown into the channel, as to defy the efforts of the stream to dislodge them, which if not speedily effected, a sufficient time has only to elapse to clear the outer parts of the earthy matter which may have fallen with them, which together with sand immediately deposits itself in rear, when every hour secures and strengthens them in their position against the stream, (fig 3 Pl XIV*) The interstices (should there be any) are soon filled up with any extraneous substances that may be lodged by the current Those organic remains which may happen to be imbedded, or rather buried under this sudden deposit, if petrified in that situation, may be easily distinguished, as they invariably adopt in the process of petrifaction, the hue of the mass with which they are in contact, and which, when the process is complete, nothing will remove, and the porous parts of the bones either remain empty, or are filled with carbonate of lime, infiltrated, whilst in solution The same remark applies to wood or any other substance In every other situation the interstices of the fossil to which the water has unrestrained access, is filled with either silicious or argillaceous matter, and frequently with a composition formed of both For the proper consolidation of either of which, however, the presence of the carbonate of lime is necessary.

Both these formations may be, and frequently are, instanced in one specimen, where from fracture or decomposition, sand or clay may be admitted to one part, when the composition is formed, whilst [illegible] cluded from those more perfect, the pores of which will be [illegible] with crystallized carbonate, or remain empty as above st[illegible]

By the continual cutting away, and falling in of the banks of the river, the accumulation of alluvial matter in some places is necessarily very extensive The strength of the current preventing its deposit in the channel, it is carried down to the bend of the river, next below whence it has been dislodged, in the shape of thick sediment, and deposited there, the sand which accompanied its removal is [illegible] bed of the channel. This [illegible] on [illegible] ation, [illegible] 50 or 10[illegible] [illegible] the first quality, between Agra and Allahabad; producing by

far the best crops of any land in the neighbourhood of the Jumna Many of these deposits (which occur at every turn of the river) are several feet above its present highest levels, these, however, the river by having deepened in its course since their formation, rather diminishes than increases by washing out those veins of sand, (parallels to the 2nd regular alluvial stratum of the Duáb general alluvium,) from one to six inches thick, which are invariably interstratified with this deposit; the more compact alluvial stratum above these veins being deprived of their support, separate and fall into the water in flakes, when, if the current is not too violent, the base of another deposit is formed, corresponding to the levels attainable by the river in its present bed, causing the upper surface of the united deposits, either the slope gradually towards the deep part of the channel, or the junction to be marked by a step or steep slope All those, however, which are covered with only a few inches of water at the highest levels receive an additional deposit of sediment, which, however trifling, answers the purposes of the best manure

2nd. *Of the Rocks*

This term, (as understood on the Jumna) is applied to four distinct formations, namely—1st, superior sandstone, 2nd, volcanic, 3rd, isolated masses, the remains of beds of nodule kankar, and 4th, conglomerate rocks, composed of kankar and extraneous substances

1st *Of the superior Sandstone* The only strata of this formation occur at intervals between the neighbourhoods of Bárriari and Dhowrie two villages on the right bank of the river, and near Mhow, a village in the Bundelkhand

Near Barriari a great deal of good stone for building purposes, and of any dimensions, is quarried, (fig 1 Pl 3 spec 1) and sent to Allahabad Very good stones are also procured from many parts of the bank near the above places, by removing two or three feet of loose earth or clay. It is fine grained, and very similar in colour and quality, to that procured from the neighbourhood of Bhurtpore In fact I believe them to be portions of the same stratum, but am not sufficiently acquainted with the geological features of Bundelkhand (the intervening tract) to make the assertion

A portion of this stratum, thrown together in large masses by volcanic irruption, forms the curious little rocky island on which a Shiwala is so picturesquely perched in the centre of the river opposite the village of Dhowrie, about two days' journey from Allahabad.

The other stratum occurs at Mhow only, and extends more than one- [illegible] tally [illegible], it

fig. 2

fig. 3.

has caused infinite trouble, not only by the interruption a body of any sort must be to the navigation in such a place, but by the irregularities of its surface (forming the bed of the river), acting as receptacles for the moving kankar and other extraneous substances passing over it, in which have formed irregular masses of conglomerate, now occupying two-thirds of the whole width of the river. These, perhaps, at the time of their formation did not stand more than a few inches above the bed of the river, (the upper surface of the sandstone rock,) but the river deepening its bed in the course of ages has gradually worn away the sandstone, leaving the masses of conglomerate (on which it can make no impression), in the awkward and dangerous positions which they now occupy, with deep water all round them; and although some of the most dangerous have been removed, the passage down with a side wind is often impracticable to the clumsy boats used on the Jumna It has this advantage over Karim Khan, (the worst pass in the river,) that the stream is not quite so rapid.

Those portions of this stratum which lie near the edge are exposed to the effects of the stream in a minor degree, and stand from one to five feet above the lowest levels, presenting peaks and heads of masses at irregular intervals over a space of about 500 by 400 yards. The exteriors of these are of a dirty green colour, which penetrates about one-eighth of an inch, and is, I imagine, caused by the action of the atmosphere Under this coating, the natural colour of the stone appears varying between every tinge of yellow and red, and pure white, which would indicate the presence of some portion of iron, but one sight of the accompanying specimens will convince you, Sir, that but for the presence of some consolidating medium, the sand of itself would never resist the action of any stream This consolidation occurs in the shape of numerous veins, from one-fourth to two inches in thickness and from three inches to many feet in width, passing through it in every direction, and rendering it quite impervious to the stream with which it has to contend, and from the feeble attempts of which it is in fact defended by some masses of volcanic origin, which are described below. These veins (spec 2) are either the deposit of some ferruginous spring, which has had a passage over the stratum, and on which the sand has from time to time accumulated, or is a lignitious lava, they occur in every position, horizontal, vertical, and at every possible angle with each of these their outer edges are black, and bear a very high polish, produced by the action of the water. The fracture

[illegible] distance within [illegible], having [illegible]

The total absence too of iron within the bounds I am endeavouring to treat of, in any of the alluvial formations, and the intimate connexion existing between the sandstone, and substances of undoubted volcanic origin, strongly incline me to the opinion, that the heat necessary for the production of the latter, might have split the former, and that the interstices thus produced, have filled with the lava, (the present veins,) in a state of fusion Another circumstance, confirmatory of this, is the fact of the sandstone being in a state of transition with the vitrified substances, but owing to the brittleness of the intermediate substance, (spec *d*) it was with the greatest difficulty I could procure the accompanying specimens.

Of the Volcanic Rocks

These occur in two separate situations, namely, at Murka and Mhow You will perceive, Sir, that the specimens from the former place, agree with Nos 4, from the latter, although the shortest distance between these places cannot be less than 20 miles, perhaps more

The mass at Murka, consisting of rough spheroidal blocks, varying from one by two, to three by five feet, lies on the right bank of the river, their peculiar shape, appearance, and position, leads me to imagine, that they have been ejected in a partially vitrified state, and lodging in the water, the outer and angular parts have become slacked, and have been swept away by the stream, leaving these blocks, which, under these circumstances, are exactly similar to the core of badly burnt lime, in no other way can I account for their peculiar formation, which had it been produced by rolling, the same cause would have scattered them widely, but this has not been the case, as they lie in a clearly defined mass, (fig 2 Pl XV) and in this instance, have no other connexion with any other stratum than being superincumbent

They correspond exactly with Nos 4, from Mhow, both in the degree of vitrification, colour, texture, and every thing but position, those at Mhow overlie, but are entirely detached from their bed, (sandstone,) and the same quantity is scattered over a greater space than at Murka Their exterior is jet black, and so highly polished, that it is impossible to examine them for any length of time when the sun shines, the great light and heat they reflect during the day is peculiarly distressing to the vision The interior is a mottled dark, and light red, one view of which is conclusive of its volcanic origin. (Specs 3 and 4)

Nos 5, are specimens also from Mhow, the originals, (spec. 5,) occur in very considerable masses, having both sandstone and clay as a base, and standing above it from 1 to 20 feet; the largest of these

masses is about 45 feet in diameter, of irregular shape and lighter color, than the detached masses, and evidently has not been nearly so much subjected to the action of fire as the latter, they are much softer, and have interstices filled with earthy matter, which has been subjected to great heat, but are only partially vitrified

This substance either passes into unburnt clay of the 1st alluvial stratum, or the stratum of superior sandstone, on both of which it rests, (Specs *c* and *d*)

The singular appearance and conformation of the detached masses could not fail to attach something of the marvellous to them Native tradition states them to be the stones which the army besieging Lunká, under Ráma and Lutchmun, were enjoined to bring for the purpose of building the celebrated bridge, but enough having been accumulated, messengers were despatched with the news, two of whom posted themselves at Murka and Mhow, two ghauts on the Jumna, and each, *Lungoor* and *Talah*, arriving with his load, hearing the welcome tidings, it was deposited here, and he proceeded lightly on his journey I had this version from a Brahmin, who begged me, whilst getting my specimens, to remember that such relics should on no account be disturbed

Of Isolated Masses, the Remains of Beds of Nodule Kankar

Whenever these remains occur, the river is by their considerable extent generally contracted in its course, causing the water to rush through the narrow but deep passages between isolated masses of what was once one continuous bed

The passage at Karim Khán (fig. 1, Pl XVI) (the point d'appine of the Jamna works,) is now and has been perhaps for centuries, solely affected by the presence of the remains of an extensive bed of nodule kankar, and is at the present moment the worst pass in the river for boats passing downwards at all seasons and upwards in the monsoons. As a description of this is applicable in its general outlines to every locality where these remains occur, I shall confine myself to it

This bed has originally been and is still partially connected with and resting on the right bank of the river, its surface I imagine to be about 75 or 80 feet below the average level of the Bundelkhand bank, and the bed of the river to be about 16 feet below the surface The left or Dúab bank is not above two-thirds the height of the opposite one, and is protected by a very extensive shingle shoal, had it been a bank on which the stream would have made any impression, the river would have certainly taken a course more free from impediments than the one it now pursues. The stream being thus confined, has, by the gradual deepening of the river throughout its course, been at last

thrown over this bed of kankar with sufficient force to break it up partially, and the remains present a number of detached masses protruding across two-thirds of the river, from the right bank, standing from four to five feet above the surface of the water at low levels, exposing the whole thickness of the bed, which varies between three and five feet, and an average of two feet of its substratum a stiff clay, and between them deep channels are worn. The action of so rapid a stream on all sides of these bases of clay (the supports of the superincumbent kankar) is gradually but surely reducing them, and in the course of time, becoming too feeble to support its weight The kankar will be deposited in the bed of the river some 12 or 14 feet lower than its present position

These masses, which vary from a few feet to many yards in size, are externally very compact and hard, but on penetrating 18 inches, it will be found, that they maintain inside this crust a similar appearance and quality with any bed that might be opened in the centre of the Dúáb, namely, the interstices between the nodules being filled with a loamy clay, and having every appearance of having been undisturbed since the formation of the bed.

It was on the strength of the unsuccessful search I have instituted in and under such strata as this, that I hazarded the opinion that I should consider the slightest discovery of fossil (animal) remains at a level corresponding with the deepest parts of the river, as the merest possible accident perhaps I should have rather said, fossil remains may possibly be found in the Dúáb general alluvium; but it must be under parallel circumstances with those producing the Jumna fossils, as it is impossible to suppose that during the accumulation of this immense formation that such a space was void of animal life.

The question mooted by GRIFFITHS in speaking of the fossil remains of elephants, "Can we suppose that none are buried there (in climates to which the elephant is native), or that the bones have been decomposed by the force of heat," chimes so much in tune with the idea that possessed me on examining every excavation in the Dúáb to which I could get access, previous to being acquainted with the section formed by the Jumna, that even now I should feel little difficulty in asserting, that unless some sufficient body intervenes between organic remains and the decomposing power of the sun's rays, soon after their assuming a morbid state, no vestige of them ultimately remains. Experience has proved that they are buried, fossilised, and petrified within the limits of this general alluvium; but in my opinion they are not even cotemporary with this formation, but of a date more recent. for with such an ample section before us, as is presented by the Jumna,

Kerim Khún
d
d
d
a
Tower

would it be possible, where from the presence of strata of the secondary series, the complete section of the alluvium must be exposed, that within the limits I have examined, not one instance of fossil remains has occurred imbedded in it? To what cause then can their absence be attributed, but that they have been decomposed by the force of heat, before they could attain a state necessary for their preservation? To what then do the present specimens owe their existence? I must suppose either to the interposition of some body (water for instance) between them and the sun's rays, or to their having been petrified in the colder latitudes of the Himálaya, and lodged in the situations from which they were procured by the action of the current

The fact of their being found in every stage between freshness, fossilization and petrifaction entirely excludes the idea of their having been uncovered by the deepening of the river having washed among any portion of the secondary strata, by which they would have been exhumed from the stratum in which they had been petrified had the petrifaction taken place there, they must have all occupied that position from the known age of the general alluvium, a sufficient time to have been all alike or nearly so, which is not the case

The following observations made on the conglomerate formation may throw some light on the subject

The Conglomerate Rocks,

Are composed of nodule kankar and extraneous substances—and consist of two separate formations, both of which are strictly mechanical, together composing one-third of the rocks of the Jumna Their difference consists in one formation being consolidated by means of cement, the other by the intervention of carbonate of lime deposited whilst in solution in all the interstices of any mass, thus connecting the whole together.

Before proceeding further, it will be necessary to explain how these nodules of kankar and extraneous substances are accumulated, and then show the method of application of the consolidating bodies. In all the high and nearly perpendicular banks of the Jumna, ravines are cut out by heavy runs of water at short and irregular intervals, which serve as drains to the surrounding country During the heavy periodical rains, considerable bodies of water rush through these ravines with great violence, bringing down drift wood, rubbish of every description, nodule kankar, and large portions of clay detached by the water from the sides and beds of the ravines. The latter generally arrives in the river rolled into figures varying between a prolate ellipsoid and spheroid, (spec. *z*,) of all sizes, and from 20 lbs to $\frac{1}{4}$ of an ounce in weight. The clay being softened in its rolling progress,

attaches to its circumference every substance hard enough to make a sufficiently deep impression to secure its hold, this continues until every portion of the outer surface is covered, when, of course, the accumulation ceases, in this state it is washed from the ravine into the bed of the river, on reaching which, it is carried forward in a new direction of the current of the river, which deposits it in the nearest hollow in its bed, where after lying a sufficient time, the body disunites, the lighter earthy particles are swept away by the stream, whilst the clay kankar, and other substances which may have been brought down with them, remain as deposited there thus are all the necessary ingredients at once provided for the formation of a conglomerate rock except the sand, which in the course of a few hours generally proves the most abundant article of the composition, when only a sufficient time for the cement to set is necessary to present a rock, which the carbonate of lime (which fills all interstices that may be left) ultimately renders the hardest, and from their situation, very frequently the most dangerous rocks of the Jumna (Specs 6)

The conglomerate in which carbonate of lime is the consolidating medium is generally produced by the breaking up of the beds of nodule kankar, by the supporting pillar of clay (its substratum) being washed away, or other causes, the loose or interior nodules, of which are then deposited in the nearest hollow lower down the stream that can detain them, when from the absence of clay (excepting this dislodgement occurs in the monsoon), the cement cannot be produced, and the deposit remains until by the usual process of tufa formation, the whole becomes one consolidated mass, (spec 8,) this, however, must be the work of time, during which, sand often fills many of the interstices, and becomes a part of the conglomerate body

The fractured edges of remains of nodule kankar beds often present this formation, although from the difficulties it has to encounter, a very small proportion of the conglomerate rocks of the Jumna belong to this class The principal tufa formation that I am acquainted with, was removed by Lieut MARTIN, Engineers, from near the village of Orowal, where the accompanying specimens were collected (Spec 8)

Most of the specimens in your hands, Sir, will speak for themselves I select, however, one instance of the cement formation, in which the fossil remains of an elephant are imbedded, which I consider, claims a particular description

The site of the mass containing these interesting remains on the right bank of the river, about 12 miles from Kotah Jehánábád on the high road to Cawnpur, directly under the village of Pachkowrie, which stands nearly 80 feet above it, lying amongst an immense as-

semblage of kankar deposits of various ages and appearance where it is conspicuous by its size and thickness* The bank on which these have been formed, is a portion of the first alluvium stratum

The existence of these remains, in the position they occupy, bears me out in the assertion that one-third of the rocks of the Jumna are of a mechanical formation, and some may even possibly date their formation within the memory of the present generation, that are now some feet in thickness, and of very considerable extent, others only in embryo which may, on arriving at their full size, be able to turn the course of the river As I imagine three feet to be the maximum, and half an inch the minimum, thickness in ordinary cases of any layer deposited in one monsoon, for at this season only does it receive any considerable addition the product of a heavy shower or short continuance of unseasonable rain, I imagine to be very trifling, the ground being generally in so parched a state near the banks of the river (where the drainage is so rapid and complete), that an ordinary shower is absorbed, or nearly so before reaching it, producing no other effect than a run in the deepest parts of each ravine, which ceases almost as soon as the shower

Others, however, of the same formation are entitled to be considered of proportionally great antiquity, for if my position be established, that it is to some peculiar quality of the water, combined with the other consolidating bodies, we owe not only the majority of the rocks of the Jumna, but the organic remains that have been or may be discovered, there must be some instances of both existing, whose ages must be coeval or nearly so with the river itself, as the same causes must always produce the same effects, and once produced, their positions and appearance may be altered, but the greater their age, the more combined and natural do these substances become, until their appearances present so little in consonance with conglomerates of the most ancient structure, that nothing, but an examination equally minute with that I have bestowed on the subject, can distinguish between them Those having pretensions to antiquity are the ones occupying levels to which the river seldom now ascends, and never continues at such heights more than a few hours together, with others quite out of the reach of the present highest levels

In the specimen before us, the form of each bone in its position in the deposit has been accurately preserved, but not in a state in the slightest degree approaching what it would have been, had they been exposed to the uninterrupted action of the water, which proves that

* The plate referred to here in the MS is omitted —Ed

the animal has either died in, or has been after death washed, to, the position it now occupies, on which the deposition of kankar and other substances has still continued, thus rapidly enveloping it in a crust, which accounts for the absence of petrifaction, (specs *a* and *b*,) for I have observed that in very few instances, where organic remains have been imbedded in the kankar deposit, has the bone materially differed from the present specimen Instances have occurred, and still may be referred to, as existing at the present moment, whereon the deposit having attained the highest level of the river, or from the sinking of the river in its bed, it has been left at a level scarcely ever attained now at its highest rise, where the formation has necessarily ceased in these cases, those bones, which with other extraneous substances help to form the upper crust or surface of the deposit, are generally from their being larger than the nodules of the kankar, but partially imbedded, that part which has been exposed to the action of the water, is perfectly petrified, and is rather darker than the surrounding kankar. whereas the part below the surface maintains the same colour, appearance, and quality, (fossilized, but not petrified,) as this specimen or nearly so, allowing for the difference in the size of each, (spec 7,) and the proximity of the petrifying medium to the former, which, I consider ample proof of the rapidity of the formation, as, if the process was slow, many instances must occur of bones or wood in a thoroughly petrified state, being met with imbedded in these masses I have found, however, nothing approaching nearer a state of petrifaction than specimen Nos 7, which are completely fossilized, but not petrified

Another proof of the rapidity of the formation is, that the interior is not much more consolidated than the interior of a bed of loose nodule kankar, and the only difference between them is, that the interstices between nodules in the latter are generally filled with loamy clay, whilst here sand occupies its place

The antiquity of this particular specimen must be very considerable, as I question if the upper parts are covered during the highest levels The river has deepened its bed abreast of it about 25 feet, which even supposing it to have never occupied a higher level than at present, which cannot of course be now ascertained, precludes the possibility of any addition having been made to it for ages

Numerous instances of organic remains occur in other masses of different deposits lying in all directions round it, but the grand scale both of these remains and of the mass in which they are imbedded, completely throws them into the shade.

The sides of the mass presented to view in the accompanying sketch* are evident fractures caused by the breaking up of the field by the deepening of the river in its course, and although the present mass is of the largest dimensions met with of this formation, I have no doubt it forms but a mere particle of the field as it originally stood, the remains of which now occupy various isolated positions in the river abreast of it, which run across two-thirds of the whole breadth

Many other observations might be made on this deposit (and this specimen of it in particular), that do not now occur to me, but they will readily suggest themselves to some more intelligent visitor, who may be induced, from these remarks, on passing the spot, to give it an hour's examination

As I believe no instance is on record of any other organic remains than shells having been found in those strata of kankar opened in so many parts of the Dúab, in excavating wells, and for the purpose of being burnt into lime, &c, the conclusion I draw from the observations I have been enabled to make, are all in favour of the opinion given in my letter of the 2nd of August, that I do not consider the fossil remains of the Jumna, as at all connected with the natural kankar formation, for wherever the specimens hitherto collected have been found, circumstances quite as conclusive as those above pointed out attend to shew that only these mechanically formed masses are in the slightest degree connected with the fossils, and that the formation is decidedly confined within the action and limits of the river, either past or present, but very possibly similar ones may be met with in parallel situations in other parts of the Duab, generally alluvium, as yet unrecorded

In your note on the Narsingpur fossils, I consider A A, the rocks in which the bones are imbedded, to be a most accurate description of the deposit rocks in the Jumna, if kankar was substituted for rounded pebbles of course, this difference the localities of these specimens has alone effected, as the distance from the hills (which alone could supply rounded pebbles of the Nerbadda, at Narsingpur) is so much less than the Jumna at Pachkowri†

* A rough pencil sketch is here given in the MS of the mass of kankar "of the deposit formation," containing the fossil elephant near Pachkowri, it lies 4½ feet above water-mark the description in the text has been deemed sufficient without the plate —ED

† This conglomerate varies its character according to the rocks which have supplied the rounded pebbles of which it is composed, these are sometimes granite, sometimes kankar, and sometimes jasper or vitrified clay —A description of extensive deposits of it in the Rajmahal hills will be found in the extract from

The position too of the rocks shewn in section, (fig 1, Pl 21, of Vol II) as containing fossils, is such, as I should have given them, had an elevation of the bank of the Jumna been required of me. Of course, I have had no opportunity of comparing the specimens from the above places but from their general coincidence in position, and the fossil remains found in each, I am led to believe an intimate connexion exists between them in date, formation, and structure, and if, Sir, you think I have satisfactorily shewn the system of the deposit kankar formation in the Jumna, I think the same description would apply to similar formations in the Nerbadda

3rdly Of the Kankar Shoals

These are composed of every variety of substance that is ever in motion in the Jumna, the most common of which are broken bricks, bones, shreds of earthen vessels, wood, fragments of granite, sandstone, quartz, agate, water pebbles, petrified clay, and composition shingle, of every variety of mixture that the clay of the surrounding country and sand of the Jumna will admit of This last bears a proportion of four-fifths to the whole, which being mistaken for kankar, (of which the quantity is very trifling,) has occasioned the misnomer of kankar shoals

It is among this heterogeneous assemblage of substances, that the best specimens of petrifaction are to be found Bones, however, in every stage between freshness and a state approaching the hardest stone are procurable by turning over the surface about a foot deep, but I imagine, in fact I have ascertained, that not only more perfect, but a considerable abundance of the best specimens would be found at greater depths, as, during levels of the river sufficiently high to cover these shoals, the fragments near the surface are subject to violent attrition, and bones and other fragile substances, to total demolition, from the masses which are at such times continually rolling over them Numerous instances occur in some of these shoals to support

BUCHANAN'S MSS published in the GLEANINGS, vol iii, where also its characteristic of containing "giants' bones" is preserved in the very name of the place, *Asurhár* —this circumstance has been brought to our notice lately by Mr STEPHENSON, who has lately learnt that a gentleman at the Burdwan colliery has collected a number of fossil bones, and shells from the sides of other hills of the same range Being very anxious that this field should be again and more thoroughly explored, we have republished the passage from Dr BUCHANAN on the cover of the present No, and would direct the particular attention of our correspondents at Monghyr, and of the engineers engaged on the Rájmahal canal survey, to the whole line, which will probably prove as prolific as the Nerbadda or the Jumna It may also afford proof against Mr DEAN'S account of the formation of the conglomerate, and introduction of the bones within it by the action of the river —ED.

the opinion before advanced, namely, that the force of heat is capable of causing the decomposition of bones, unless shielded by some intervening substance, applied during a state of freshness, and continued up to a certain period, the time of which must vary according to the quality of the bone, but my experience does not enable me to set bounds to the time necessary to render one of any quality proof to the effects of the sun's rays I imagine, the seasons may cause so much variation, that the exact time necessary for them to continue under this protection, cannot be better defined than between the time of their deposition in a state of freshness, and the extinction of every animal or vegetable property, when they become nothing more than consolidated earth, (see specimens, the remainder of a pípal tree, Nos A 3,) and even in this state I am led to believe, that exposure to the sun would cause decomposition, and to this, as well as to the effects of attrition, must be attributed the very few perfect bones found in these positions I once found the femur of a camel, the middle of which was covered by a large damp stone, the portion covered was perfectly petrified in its whole circumference, whilst both ends were decomposed, but the absence of fossil remains in the whole section of this general alluvium is more conclusive than any minor proofs that can be adduced

Very few specimens of wood occur in these situations To the reasons advanced in explanation of the imperfect state of the bones is to be added the greater degree of brittleness of this substance in a petrified state I have never procured more than three specimens from the kankar shoals, which I will forward with the other specimens of the collection.

Petrified clay (Specs 9,) is found generally in small portions, and is transmuted by the same process as the earthy substance, to which wood is reduced previous to petrifaction, (spec A 3,) which to all appearance has every property of indurated clay, the specific gravity of each being nearly the same

Composition shingle, or cement pebbles, are produced by the admixture of clay or sand in almost every proportion of each. the most common process of the formation is as follows

After a heavy shower, the water in its passage through the ravines near the river brings down with it clay in the shape of a thick sediment; this in many instances, after leaving the mouth of the ravine, has to run over large sand beds before it reaches the river, through which any considerable body of water cuts deep passages or gulleys, which run nearly horizontal 10 to 20 yards, and then fall 4 to 12 feet, running on again, they fall and run on irregularly, until reaching the

river When the principal body is passed, the sediment becomes thicker, and dropping over these falls, mixes with the sand of the horizontal run beneath, forming first a single irregular mass on the upper side, whilst the under is pretty irregular, and of a rounded form in this at first the sand predominates, the sediment continues dropping and adding to the stone, until all the sand within reach has been sucked in, when the formation ceases, and all the sediment that continues to fall on the same spot, adds nothing to, but merely rests on the composition, and is washed off by the next run of water, leaving a perfect stone Six or eight stones are very frequently formed in this manner, of different shapes and varieties of composition, under the same fall, which is entirely regulated by accident, in some of these sand predominates, (specs 10 and 11,) in others clay again, the composition consists of nearly equal portions of each One fall may produce 10 or 12 stones separate, which another run of water may from the sediment falling on a layer of sand deposited since their formation unite, thus forming one stone, (spec 12,) the difference between the first formed and their cement being very perceptible. The cement becomes set and as hard as dry mortar in two hours after the mixture has taken place, and after three days' exposure to the sun, they attain the substance of stone more or less hard, according to the justness of the proportion of the composition, these stones being generally round, are more frequently in motion than any other substance, and is owing to mistaking them for natural kankar, (I say natural, as I believe the substance to be kankar, of mechanical formation, the same ingredients forming in my opinion both,) that the term kankar shoals has been applied.

Of the Sunken Trees

This dangerous obstacle to navigation is so well known from its occurrence in almost all navigable rivers, whose banks are covered with wood, that little need be said of it here

The trees have originally occupied a position on the verge of the bank, which the stream having undermined, they have fallen into the river, with a quantity of earth attached to the roots, the weight of which firmly anchors them to the bottom, the head laying with the stream In the Jamna any portion visible above the lowest levels is cut off to the water's edge by the inhabitants of the nearest village, leaving the bluff stumps of the large branches in the most dangerous position possible, at average levels. In 1833, the whole of these between Agra and Allahabad were sought for and taken out, and by the precautions then taken by the superintendant, it is next to impossible that any other instances can occur for many years, as every tree with-

in a certain distance of the river has been cut down, and others still farther back marked for the same purpose 10 or 12 years hence

A few may perhaps be drifted out of the Chambul and other tributary streams, but of so little consequence from their small size (the large and dangerous ones lying where they fall), that this obstacle may be said to be almost entirely surmounted

Description of a cluster of four palms and a pipal tree These remains have belonged to trees once growing on the general level of the Bundlecund bank, which having been sapped by the stream, they have slipped down with the earth, in which they grew, in the manner represented in sketch No 7, (7 fig 1 Pl)* The pipal having been nearest the river has fallen lowest, and according to their distance from the edge do they now occupy their present positions, forming as it were a graduated scale, proving more strongly than any other instance I am aware, the petrifying qualities of the water All I could write on this subject would not be so conclusive of this assertion as one glance at the specimens, which I shall merely describe

A is the bark of the pipal stump, five feet in diameter, and about 14 feet long, lying on a sloping bank, with the root towards the river

A 3 are portions of the body or trunk, which is reduced to that state, which I conceive necessary for any substance to attain before petrifaction commences, viz a total extinction of all its animal or vegetable properties whether the wood is actually changed into stone, or the gradual formation of stone merely destroys and takes its place, I am not able to decide, I can only say, when once properly petrified, the rings, the marks of annual growth of the tree, remain as apparent as when in a vegetable state

A 2 roots of do in a similar state to A 1

B remains of the palm			No 1	of sketch No 7
C do	of	do	No 2	
D do	of	do	No 3	
E do	of	do	No 4	

The very apparent difference of texture between specimens Nos 1 and 4, is caused by the former lying lower, it has been more frequently exposed to the action of the water than the latter Nos 2 and 3, occupy intermediate levels

In adopting the term "petrified," as regards the palms, it is necessary to observe, that the striated fracture precludes the idea that this is the wood, the grain of which would be longitudinal, and confirms it as a tufa formation, enveloping the several parts of the tree exposed Still I imagine, there are sufficient portions of fibres really petrified, to warrant its being applied as a general term to these specimens.

* We have conceived it unnecessary to insert this sketch.—Ed.

P S I have found on comparison that I had come to wrong conclusions, with respect to some of the vertebræ, I had the honor to send with the last parcel, of which opportunity I availed myself to send all of which I had the least doubt The teeth too, which I have hitherto called camel's, cannot have been rightly classed, as they bear not the least appearance of having belonged to the existing species, at least, the evenness of the crown differs entirely from any anatomical specimen to which I have access

I should have forwarded the whole of the undermentioned specimens before, but obvious reasons induced me to wait the present opportunity

List of specimens illustrating observations on the obstacles to navigation in the Jumna, forwarded from Delhi 22nd October, 1834

A, B, C, D, E Specimens of the remains of a cluster of one pipal and four palms

F Parcel containing 10 specimens of petrified animal remains, viz Nos 2 and 3, teeth Unknown

,, 14 portions of Asiatic elephants' jaw and tooth

,, 38 and 39, upper extremity of femur and kneepan

(Of these I had myself no doubt, as having belonged to a camel, but some doubt having been expressed in another quarter, I have left it to your decision)

Nos 40, 41, 45, 48, 49 Vertebræ

x Specimens of pipe kankar.

y Supposed shale

z Rolled clay connected with the formation of conglomerate rocks

a and *b* Fossil remains of an elephant from Pachcowrie Femur and enamel of tooth

c Specimens of clay passing into or vitrified clay.

d Specimens of sandstone passing into ditto

1 Fine sandstone from Burriarie

2 Coarse ditto, from Mhow

3 Specimens of vitrified clay from Murka

4 Ditto of ditto, from Mhow

5 Ditto of ditto, from ditto

6 Cement formation of conglomerate rock

7 Tufa ditto, of ditto, containing blade bone of camel and other animal remains

8 Specimens of outer edge of beds of nodule kankar, conglomerated by carbonate of lime

9 Specimens of petrified clay.

10. Composition shingle, in which sand predominates

11 Ditto ditto, in which clay ditto.

12. Ditto ditto, of separate formation, cemented into one mass.

13. Specimens of sandstone peculiar to the Jumna

NOTE.—We intended to have given plates of the principal fossils forwarded by Serjeant DEAN, but the friend who had kindly undertaken to draw them has been prevented from accomplishing his task in time, we must therefore reluctantly postpone their insertion and notice.—ED.

V —*Note on the Gold Washings of the Gúmtí River* By Lieut CAUTLEY, *Beng Art*

In the 18th volume of the Asiatic Researches (Physical Class), the occurrence of gold in the line of mountains skirting the foot of the Himaláyas has been brought to notice by Captain HERBERT, and as in his specification of the points where it has been found, he has drawn our attention chiefly to the Rámgunga, and its tributaries east-ward of the Ganges, and has not noticed the tract of mountains upon which the town of Náhun stands and as in the system adopted by the natives in washing the sand, as described in the paper alluded to, there is some difference from that of the Náhun washers, it will be perhaps interesting, not only to bring forward this new locality, but also to shew the simple means adopted in procuring the mineral

The late grand discoveries of organic remains in the hills under Náhun, and the consequent desire of prosecuting the inquiry as far as means would allow, have like many other searches led to the discovery of an object of a totally different nature from that in pursuit, nor may we be far wrong in agreeing with Captain HERBERT, that the ultimate discovery of gold in abundance in these regions will eventually either benefit some fortunate individual, or else come at once under the eye of the ruling power of the district

I will however enter upon the subject of this note, previous to discussing the probabilities of discovering the ore in situ

The rivers from the beds of which the sand containing the ore is procured derive their sources solely from this lower tract of mountains, and are not in any way connected with the Himálayas! There does not appear to be any river free from the ore, although many of them are considered by the washers as more abundant than others, and consequently more worthy of their labor that to which I shall particularly refer is named the Gúmti river, which leaves the mountains at the village of Chúran, Gúmtí being the name of two villages on the right and left of the stream, about three miles in the interior, at which there is a main junction of tributaries, the river opens into the plains opposite to the town of Sidoura, to the westward, and parallel to the Choura Pani and Markunda river, which carry off the greatest portion of the drainage from the hills directly under the town of Náhun.

The gold washers are by no means numerous, and are of the poorest class, depending entirely on their trade for support The Rájá of Náhun levies a tax of a *masha* per annum on each trough but although there is no restriction to the number of people employed, as long as this

toll is paid, there does not appear to be any desire or competition on the part of the natives to carry it on, by which we may draw a tolerably accurate conclusion on the returns of the trade as it now exists

The apparatus used by the washers consists simply of a trough, a sieve made of the Sirkunda grass, a flat piece of board, with an iron edge for scraping up the sand, a plate or dish for carrying it away, and triturating the sand with mercury, and a ladle or spoon made of a gourd, for raising water with these and a little mercury in the end of a hollow bambu our gold-washer starts on his pilgrimage I have endeavoured in the accompanying sketch Pl XVII to give some idea of the process, and this will perhaps be clear enough without much explanation. The gold washer, in the first instance, examines the soil by washing a small quantity in his hand, the smallest particle or particles of the metal are easily detected the soil holding the greatest quantity appears to be that in the line upon which the drainage of the river takes place, for these mountain streams occupy but a small space of their channel during the dry months, or even at any time, with the exception of those periods, during the rainy months, when very heavy and successive falls of rain charge every channel with its full supply The situation proving favorable, the washer then establishes his trough, the sand is placed on the sieve, and water thrown over it with the spoon the coarser particles are thus separated and thrown away, the man still continues pouring water through the sieve over the sand in the trough, until nothing remains there but an almost impalpable blackish powder, in this powder the gold dust is perceptible This powder is then collected and taken out of the trough, forming a mass capable of being held in both hands this is triturated with a small quantity of mercury on the dish or basin B, and the whole is again subjected to a careful washing with the hand on this dish this latter washing removes every thing, but a small piece of mercury and gold in amalgam The gold-washer then lights a piece of cow-dung, upon which he places the amalgam, and (as far as I observed in their manufactories) his labor was repaid by the smallest piece of the precious metal imaginable The rains are said to be the best and most profitable season at this period, two rupees per day may be the return of one trough under a gold-washer and one assistant, the worst day's produce about two annas, the gold is either sold to the *buniás* at the large towns in the neighbourhood, or given to zamíndárs for an equivalent

There is a great loss of particles of the gold in the system of washing adopted here, many of which must pass off through the trough; there is also a total loss of mercury. the latter might be easily reme-

died, we should imagine, were the washers in the habit of giving the amalgam to their employer, who might complete the process in close retorts. It is evident that under the eye of an active and interested person, a trade might be carried on here of a description by no means contemptible a much greater quantity of the mineral might be procured, and that on the adoption of a trade in the article, an improvement of the apparatus might be effected, tending much to that point. I have much pleasure in sending you three packets

No 1, containing the sand as found in the bed of the river

2, the black powder, the result of the first washing in the trough

3, the gold ore, and shall hope to see your note on the quality as well as the natural state in which the ore exists it would appear from the account of the washers that lumps or larger particles than those sent are not found, although it is by no means an easy matter to get correct information on points of this sort*

That the gold exists in any other shape than that of the present specimen in these lower mountains is very improbable The particles may differ in size, and we may in all probability detect the stratum containing the gold dust, and so procure it before it has undergone further attrition in the river's bed, but we must look to the Himaláyas themselves for the auriferous strata, from the disintegration of which the sands of these lower hills have been supplied with the mineral. Captain HERBERT alludes to the occurrence of the ore having been traced up to a certain point in one of the tributaries of the Rámgunga, a fact corroborated by Mr RAVENSHAW of the Civil Service, in a note to the Society My inquiries establish a similar limit in the Gúmtí river. this is a point, however, that would require very careful examination, and that examination under the eye of an experienced person, who, after all, in such a maze of mountains and rivers, would perhaps have to depend upon chance for successful prosecution of his labors.

The occurrence of gold in alluvial soil is common to every quarter of the globe, although South America and Africa provides the greatest supply of commerce, and in all probability there is no extensive chain of primary mountain that does not charge its drainage with the mineral in question! Its incorruptible nature, and its not being subject to the

* These have not yet reached us The black powder is however doubtless similar to that which accompanies the gold dust in the rivers of Assam and Ava:—for the most part magnetic oxide of iron. Platina may also be found in it but rarely The use of a strong magnet would perhaps prove advantageous, before rubbing in the mercury for amalgamation.—ED.

effects of oxidation from common causes, is a sufficient reason for the presence of this mineral, unaccompanied by others*

With regard, however, to the Náhun and Rámgunga gold, we are perfectly decided on one point, viz that the rivers bearing the dust have no connection whatever *now* with the great Himaláyan chain, and therefore, that if the mineral exists in abundance at any one point, it will be found in the hills from which these rivers derive their sources, and it is to be hoped, that we may even look forward to the ultimate discovery of gold in comparatively as great abundance as the present fossils, the existence of which, six months ago, would have been as much doubted as the possibility of finding gold now may be.

Northern Duáb, April 10th, 1835

VI.—*Notice of the Nipálese Spirit Still By* A CAMPBELL, *Esq. M D attached to the Nèpal Residency*

The accompanying (Pl XVII) is a rough sketch of the still in universal use throughout the valley of Nèpál Proper, as well as its neighbouring hilly country, and so far as I can learn in the portions of eastern Thibet, usually visited by Nipálese traders, on the beaten commercial routes, by the Kerún and Kuti passes of the Himálaya, to Digarchi and Lhássa I believe it to be as different from that commonly used in the plains of India, as it assuredly is from any with which I am acquainted as existing in European countries, and as its use is confined here chiefly to the Newár population, it needs no apology for intrusion on the public attention

In India, (so far as my recollection is faithful,) Nipálese men, manners, and things are regarded, as pertaining exclusively to the ruling class of the community, yclept Gurkhás, this arises partly from want of better information on, or curiosity regarding, Nèpál affairs, partly from the common habit of identifying the whole people of a country, with the few, who may for a time direct its destinies, but chiefly from Nèpál being best known to us, as the theatre of a two-years' war between one power and the afore-mentioned tribe.

The Newárs, as is well known, were down to the Gúrkhá conquest the rulers of this valley, and were, as far as at present ascertained, its

* In the specimens from the alluvial soil of the Brazils, the particles of gold are much larger than those found in the Náhun sand, appearing like little boulders, or rounded masses of the mineral In my cabinet the Brazilian alluvium is clay, or argillaceous matter, with rounded pebbles of white quartz. Mr. MAWE having provided the specimen.

original inhabitants* At the present time they form the great mass of the agricultural and artisan population, and the ruins of their well-built temples and towns painfully manifest the giving place of their civilization to the rude and barbarian horde of mountaineers who now consume in military idleness the fruits of their fertile fields. Like other tribes of the human race, the Newárs have lost their day of progress, and little remains to them now, save their eminently industrious habits, and a skill in agriculture far exceeding in efficiency that attained and practised in the neighbouring plains of Hindústán.

The fate of the Newárs, and the many good qualities by which they are distinguished, renders all connected with them of much interest. Their original country, previous to their advent in Nèpál, remains as yet undecided The decidedly Tartarian cast of their physical form, and monosyllabic structure of their language, makes Thibet claim them as her's. The most popular fabulous traditions of the race point to India as the source of their existence, while the religious creed as a means of arriving at a correct knowledge of their origin has, as yet, I believe, proved defective†

The manners and customs of a people, when known, go far to shew the intimacy of connexion with neighbouring countries, and, I believe, that were those of the Newárs (in such purity as they existed before the Gúrkhá conquest) taken as an index to their original country, few links of close connexion would remain to bind them to India, while many and strong ones would shew their Bhoteah origin.

The still, then, as an instrument of universal use, supposing it unknown in India, and to be the only one used in neighbouring Thibet, will go for something (trifling enough it is true) in the enumeration of domestic usages, and I now return to it

The furnace on which the still is represented as resting, while at work, is commonly the clay *chula* of India, or made of unburned bricks The body of the still (*phúsi*) is of copper, and is seldom made to contain more than 15 or 20 gallons, and costs from 30 to 40 mohurí rupees‡ Over the open mouth of the *phúsi* is placed the portion marked (3) named *putasi*, it is of burned clay, about the same size as the body of the still, and has a circle of round perforations, each the size of a crown-piece, flanking the large opening at its base, as represented in (7) of the sketch. The junction of the *phúsi* and *putasi* being secured by a luting of moist clay, the receiver nam-

* See Mr. Hodgson's paper on the Aborigines of Nèpál Proper, in the Journal of the Asiatic Society, for May, 1834

† It is calculated that about two-thirds of the Newár population of Nèpál are Buddhists, the remainder Brahminical Hindus

‡ One mohurí rupee is equal to 12½ annas sicca

ed *dúbli*, and marked (6) is put into the *putasi*, its base, corresponding in circumference to the large opening in the latter, fills it up completely, and leaves the circle of smaller holes free, for the passage of the spirituous vapour, to ascend into the still head, or *putasi*

The receiver being placed as above noted, within the portion marked (3), the vessel (5), named *batta*, or condenser of copper, is filled with cold water, and placed over, and into the mouth of the *putasi*, or still-head, fitting so close, as to prevent the escape of any portion of the spirituous vapour from the latter Thus fitted, the distillation is accomplished, care being taken to remove the condenser so often as is necessary to replace the water become warm, by colder, fit for the condensation of the spirituous steam

The shape of the condenser suits the performance of its office, the vapour rising through the smaller holes around the receiver comes in contact with its entire surface, and being there condensed, runs towards the apex of it, and thence falls into the sub-incumbent receiver.

The still is charged, of necessity, previous to the fixing of the receiver and condenser, and these portions are removed at each fresh charge, the receiver being either emptied of its contents and replaced, or a spare one introduced

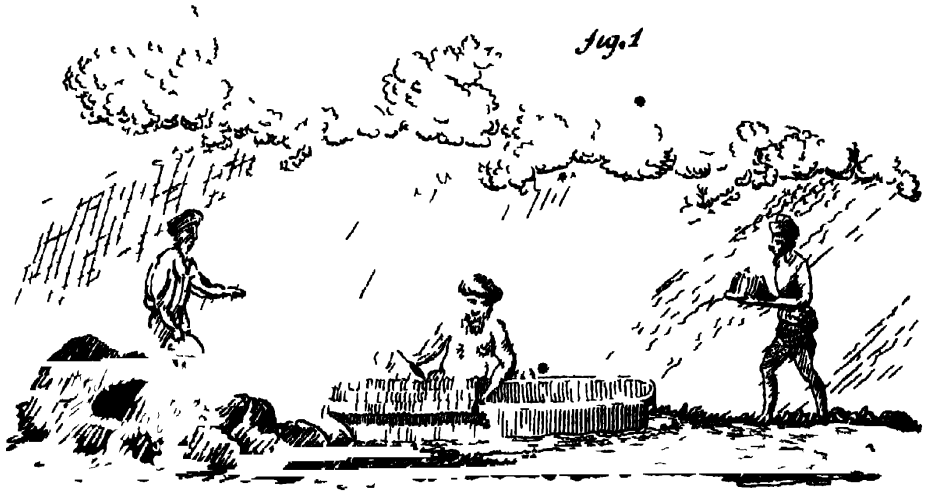
At each removal of the condenser there is of course some loss from the escape of vapour, but it is trifling, as there are usually two of these vessels attached to each still, and thus the time occupied in replacing a warm condenser, by a cold, is very inconsiderable

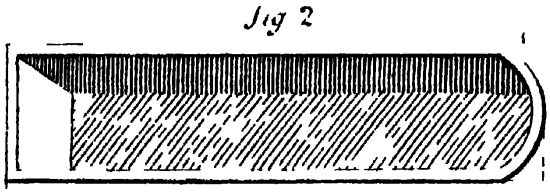
It must be admitted, that this process is rather rude, and it will be seen, that the construction of the still has not reference to the most approved principles for economising fuel It is deep and narrow, instead of broad and shallow, yet it is very efficient, and it must be remembered, that the shallow broad still even in Europe is of very modern date, and the result of the severe excise laws, existing in our own, and more civilized countries

There is one peculiarity in the working of this still, worthy of remark, and the advantages of which in saving fuel compensate in some degree for its rudeness So soon as the still is in full play, and a portion of vapour has been condensed, and reached the receiver, a fresh distillation commences

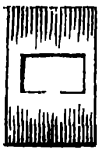
The receiver heated from below causes the spirits to be converted into vapour, which is again condensed, and thus a constant round of distillation is carried on between the receiver and condenser, in addition to the proper distillation of the contents charging the body of the still Alcohol, at the specific gravity of 863, can be produced from this still, and I have used it with complete success, in making the

Gold washers in the Beds of the Rivers under Nahun, with the apparatus used

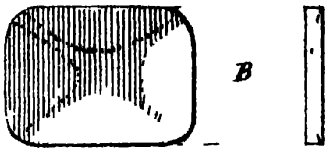




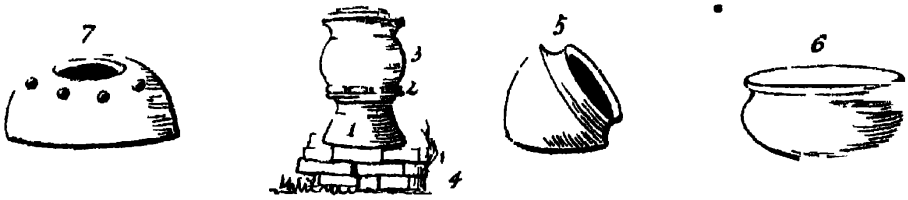
Trough

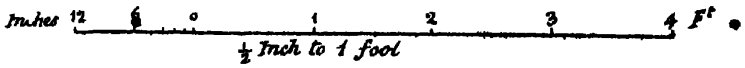


Spoon or Ladle



Nipalese Still and component parts

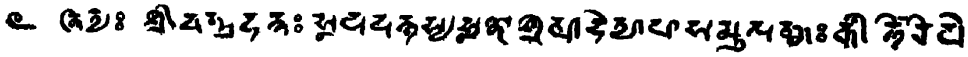




½ Inch to 1 foot

fig 6

Inscription on a piece of sculpture found near the Kesiah mound



spirits of turpentine, and the residuum of yellow resin from the *Ganda Firoza* of Nèpál*, both of these articles, being equally good for medicinal and other purposes, as that to be had in Calcutta, and, I believe, much cheaper

The ubiquity of this still throughout the valley arises from the freedom of distillation sanctioned by the rulers. Excise laws for whiskey-making are as yet unknown here, and were their executives to appear among the peaceable Newárs, I fear the fate of some of them might resemble that of ROBERT BURN's man of this craft

Every Newár, who can afford it, distils his own Rakshi (spirits from rice), and all the lower orders of this people, and many of the respectable ones, are greatly addicted to the use of spirits They are not by any means given to habitual drunkenness, but they indulge for the good of their healths, regularly and moderately In the rice-field, cold and wet as it is, the bottle is a great and ever present comfort, while at a religious meeting, or on the celebration of a birth or marriage, it goes merrily and rapidly round, males and females, young and old, alike partaking of it, to the increase of social happiness and joy in all

Few sights in Nèpál are more grateful to the foreign visitor, than the feasts and merry-makings of the Newárs. on such occasions they congregate on some green and sunny spot, near a temple, or old image, with a running stream of limpid water passing through it, and there, for the live-long day, in the idle seasons of the year, do they sing, play on the musical instruments of their tribe, often dance and ever laugh, enlivened by the *rakshi* stoup it's true, but the mainspring of their joy is the cheerful and happy temperament they possess, to an eminent degree, in strong and pleasing contrast with the sour looks and arrogant demeanour of the Gúrkhás, or the melancholy and apathetic countenances of the inhabitants of Hindústán, who sojourn for a time among them

Reference to Plate of Still, and its component portions

Names in Newári language.	English synonymes.
1 Phúsi, ...	1 Body of still
2 Sachi, ...	2 Luting (of clay)
3 Putási, ...	3 Still-head.
4 Bhúta, ...	4 Furnace.
5 Batta, ...	5 Condenser, (copper)
6 Dubli, . .	6 Receiver, (earthen)
7 Putasi, (section of,) . .	7 Section of Still-head).

* Commonly called Ganda Biroza, it is well known to be the exudation from the denuded trunk of the different species of the pine throughout these mountains.

VII —*Note on an Inscription found near the Kesariah Mound, in Tirhut* *By* J. B ELLIOTT, *Esq (Pl XVII fig 6)*

[In a note to the Editor]

Having seen mention of the Kesariah Mound made in the last No of your Journal, I beg to enclose the impression of an inscription cut below the figures of the *Avatárs*, sculptured on a black stone, which I obtained at Kesariah several years ago from a fakír The figures being small and rudely sculptured, it is not worth while making a copy of them, but as the inscription could not be made out by the Pandit of the Chapráh Committee, it may be worth deciphering I visited and made some notes on the subject of the pillars, and other antiquities in Champáran, which I may, perhaps, hereafter communicate

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Note —This fragment, which is Brahmanical, not Buddhist, is in an ancient form of Dévanagarí, differing little from that noticed on the Bakra image of Mr STEPHENSON It breaks off abruptly with an initial *i* —for it is only to *kírtir iha* that any meaning can be traced, while the diphthong *ai* or *é* is plain over the last letter, which I conclude to be an *h* The reading in modern Dévanagarí will be as follows I have added a literal Latin version

नित्य श्री चन्द्रदत्त सूर्य्यदत्तस्य सूक्ताश्रयादित्यादसमुत्पन्न कीर्त्तिरिहे

Perpetuus B CANDRADATTUS SU'RYADATTI "Sûkti"-(recitandi)-proprio-tempore-(sc)-Solis-die-natus Gloria hic

The interpretation of which in English will be —

"The ever-living CHANDRADATTA was born on the Sunday appropriated to the reading of the Súkta by his father SU'RYADATTA. Glory here.. " (The Súkta is the most sacred hymn of the Rig Veda, closing its 3rd Ashtaka or Ogdoad—and has for one of its verses the celebrated Gáyatri)

W H. M.

[NOTE —I take this opportunity of pointing out, in reference to my observation on the Bakrá image inscription, (page 131,) that I had overlooked a plate in FRANKLIN's Pahbothra, of a Buddhist image, with an inscription, to which Lieut. CUNNINGHAM has since drawn my attention On turning to it, I perceive, that the two lines separately given are, though miserably perverted by the copyist, precisely the same as the *ye dharmmá hetun*, &c of Sárnath The three lines on the pedestal, though stated in the text to be different, would appear to be the same also, at least the two first words, *ye dharmmá*, are distinct —J. P]

VIII —*Proceedings of the Asiatic Society*

Wednesday Evening, the 3rd June, 1835

The Honorable Sir EDWARD RYAN, President, in the chair

Read the proceedings of the last meeting

Mr JOHN RICHARDS, proposed by Mr BAGSHAW, seconded by Mr. TREVELYAN, was duly elected a member

Mr J P GRANT was proposed by Mr TREVELYAN, seconded by Mr J COLVIN Mr WM ADAM, proposed by Capt FORBES, seconded by Mr HARE Mr WM HY BENSON, proposed by Dr MILL, seconded by Mr PRINSEP

Captain TAYLOR, Madras Cav proposed by Mr MACNAGHTEN, seconded by Sir E RYAN

Dr EVANS, Mr PHAYRE, 7th Regt Bengal N I, Mr. STOCQUELER, and Lieut MONTRIOU, Ind N. were proposed by Dr PEARSON, and seconded by Mr J PRINSEP

The Secretary brought up the following

Report of the Committee of Papers on Mr J T PEARSON'S *proposition for creating a new order of Members, to be denominated "Associate Members of the Asiatic Society"*

1 "We consider Dr PEARSON'S proposition for creating *Associate Members* to be worthy of adoption by the Society, and we would propose that they should enjoy all the privileges of ordinary members, but we would suggest, that by way of maintaining more than the mere distinction of name between the *Associate* and the *Honorary* Members, some contribution, however trifling, should be required from the former class. The *Associates*, it may be presumed, would be composed of men, whose reputation would not be sufficiently brilliant to admit of their being classed among our Honorary Members They would, in all probability, did their circumstances admit, become ordinary paying members, and the principle upon which the present proposition rests, is, that the Society desirous of removing this obstruction, and encouraging their labours, is willing to admit them on a less expensive footing at the same time, requiring a moderate contribution to distinguish them from those eminent men, whom it considers an honor to itself, to enrol in its list of members

2 "Under the above considerations, we concur in recommending that the annual payment of Associate Members be fixed at four rupees Their election to proceed in the mode prescribed for honorary members, that is, to be previously submitted to the Committee of Papers for report

"For the Committee of Papers,

"*20th May*, 1835 "J PRINSEP, *Secy*"

The President, followed by Mr J R COLVIN, proposed that "the first part of the Report be adopted, "That there should be Associate Members, having all the privileges of ordinary members"

Mr D ROSS, seconded by Mr MCFARLAN, moved as an amendment, that the words "with the exception of any power of voting on money questions" be added This amendment was lost, as was another proposed by Mr N B E BAILLIE, seconded by Capt FORBES, "that they should have all the privileges of ordinary members, except the right of voting"

The motion was then put and carried, the second proposal was also made into a resolution, viz. "That Associate Members shall pay an annual contribution of four rupees"

The Secretary submitted also the—

Report of the Committee of Papers, on Mr GARDNER'S *application and estimate for Repairing the Monument of Sir* WILLIAM JONES

"The Committee find on inquiry that the repairs may be executed at an expence of about 150 rupees

"They trust the members will be unanimous in thinking it desirable, to evince the respect of the Society for the memory of its illustrious founder, by authoriz-

ing the trifling expence which will be required to repair his monument, and to preserve from obliteration that beautiful epitaph which he wrote for himself, and which is so characteristic of the independent uprightness and the unaffected piety of its author

"For the Committee of Papers,
"*20th May*, 1835. "J PRINSEP, *Secy*"

Proposed by the Rev Dr MILL, Vice-President, seconded by Mr COLVIN, and resolved, that the Report of the Committee be adopted and acted upon

The draft of a Memorial to Government, regarding Oriental Publications, prepared by a Special Committee, appointed at the last meeting, was then read by the President, taking the sense of the meeting on each paragraph The following is the Memorial, as finally adopted

To the Hon'ble Sir C T METCALFE, *Bart Gov General of India in Council, &c &c &c*

Honorable Sir and Sirs,

The Members of the Asiatic Society, now resident in Calcutta, have requested me, as President of their body, to address the Honorable the Governor General in Council, on a subject which engages their deepest interest

2 —It has come to the knowledge of the Society that the funds which have been hitherto in part applied to the revival and improvement of the literature and the encouragement of the learned natives of India, are henceforth to be exclusively appropriated to purposes of English education

3 —The Asiatic Society does not presume for a moment to doubt the power of the Government to apply its funds in such manner as it may deem to be most consistent with the intentions of the legislature, and most advantageous for the great object of educating its Indian subjects, but they contemplate with the most sincere alarm the effect that such a measure might produce on the literature and languages of the country, which it had been hitherto an object both with the Government and with the Education Committee, under its orders, to encourage and patronize, unless the proposition which they have the honor to submit, meet with the favorable attention of Government

4 —The Society has been informed, that this departure from the course hitherto pursued has been ordered to take such immediate effect, that the printing of several valuable oriental works has been suddenly suspended, while they were in different stages of progress through the press, and that the suspension has been alike extended to the legendary lore of the East, and to the enlightened science of the West, if clothed in an Asiatic language

5 —The cause of this entire change of system has been, the Society understand, a desire to extend the benefits of English instruction more widely among the natives of India, the fund hitherto appropriated to that purpose not being deemed sufficient.

6 —The Members of the Society are individually and collectively warm advocates for the diffusion, as far as possible, of English arts, sciences, and literature, but they cannot see the necessity, in the pursuit of this favorite object, of abandoning the cultivation of the ancient and beautiful languages of the East.

7 —The peculiar objects of the Asiatic Society, and the success with which its members have, under the auspices of their illustrious founder, prosecuted their researches into the hidden stores of oriental knowledge, entitle them to form an opinion of the value of these ancient tongues, intimately connected as they are with the history, the habits, the languages, and the institutions of the people, and it is this which emboldens them

to step forward on such an occasion as the present to offer an humble but earnest prayer, that the encouragement and support of the British Government may not be withdrawn from the languages and literature of the vast and varied population, whom Providence has committed to its protection

8 —Many arguments of policy and humanity might be advanced in support of their present solicitation, upon which the Society do not deem it within their province to expatiate There is one argument, however, which appears to be of so conclusive a character as to require distinct notice in this Appeal

9 —It is admitted by all, even the most enthusiastic advocates of the English system of tuition, that this language never can become the language of the great body of the people whose moral and intellectual improvement is the benevolent object of the British Government It is moreover admitted, that the Sanscrit language, while it is directly the parent of the dialects spoken from Cashmere to the Kistna, and from the Indus to the Brahmaputra, is also the source from which every other dialect of the Peninsula, and even many languages of the neighbouring countries, have been for ages dependent for every term extending beyond the merest purposes of animal or savage life If it were possible to dry up this source of literary vegetation, which gives beauty and fertility to the dialects of India in proportion to the copiousness of its admixture, the vernacular languages would become so barren and impoverished, as to be wholly unfit to be the channels of elegant literature or useful knowledge The same may be said of Arabic and Persian as regards the Hindustani language

10 —The Society are far from meaning to assert that the withdrawal of the support of Government, from the cherished languages of the natives of India, would put an end to the cultivation of them On the contrary, they think that the natural and necessary effect would be that both the Hindus and Muhammedans would, in that event, adhere with tenfold tenacity to those depositaries of all they hold sacred and valuable But, incalculable mischief, in a variety of shapes, would nevertheless be effected If the British Government set the example of neglecting oriental studies, it can hardly be expected that many of their European subjects will cultivate them The field will then be left in the undisturbed possession of those whose unprofitable husbandry is already but too visible, and who will pursue it with a view to the perpetuation of superstition and defective morality among the people An influence will thus be lost, the benefit of which to the more intellectual classes of natives can scarcely be estimated too highly, arising from the direction given to their studies and pursuits by those who can freely acknowledge what is intellectually and morally valuable in their previous systems, and distinguish it from what is of an opposite character and who take the first and most necessary step for removing the wrong prejudices of others, by proving that they are without unjust prejudice themselves It needs no laboured proof to shew how infinitely more powerful must be our protest against what is demoralizing or debasing in the native institutions, when we act with this knowledge and this spirit, than if we commenced by repudiating every thing Asiatic, as contemptible, and acknowledged no basis of intellectual communication with them, but what was formed in the peculiar fashions of modern Europe.

11 —If the Sanscrit and Arabic languages, consecrated as they are by ages of the remotest antiquity—enshrined, as they are, in the affections of venerating millions—the theme, as they are, of the wonder and of the admiration of all the learned nations of Europe,—if these languages are to receive no support from a Government which has been ever famed for its liberality and its justice,—from a Government which draws an annual revenue of twenty millions from the people by whom these languages are held sacred, it is the decided opinion of the Asiatic Society—an opinion which they want words

to express with adequate force, that the cause of civilization and the character of the British nation will alike sustain irreparable injury

12 —The Society, therefore, earnestly beseech the Honorable the Governor General in Council, that if, on full consideration, any reasonable doubt shall be entertained by the Supreme Government of the right of the native literature to a fair proportion of the sum appropriated by Parliament, "for the revival and improvement of literature, and for the encouragement of learned natives of India," he will then be pleased either himself to grant, or if necessary, to solicit from the Court of Directors, some specific pecuniary aid to be annually expended on these objects And the Society will be happy to undertake the duty of superintending the expenditure of this sum, under such checks as it may please the Government to impose

13 —But whatever may be the determination of the Government on this point, the Society respectfully intreat the Governor General in Council, that he will be pleased to afford to them the assistance of the learned natives hitherto employed in these literary undertakings, together with such pecuniary aid as may be necessary, to complete the printing of the oriental works, which has been interrupted by the resolution of Government to direct the funds hitherto expended upon them to purposes of English education

14 —Should Government be pleased to accede to this request, the Society will furnish with as little delay as possible an estimate of the amount which will be required for the attainment of this object

15 —The Society cannot doubt that the Governor General in Council will support their appeal to the home authorities with his powerful advocacy, nor that the earliest opportunity will be taken of bringing the merits of the important and entirely national question it embraces, before the Honorable the Court of Directors, in all its bearings This address has been dictated solely by the desire of proffering to Government the services of an appropriate organ, through which the publication of the oriental classics may be continued, and that further patronage extended to oriental studies, which it cannot believe the Government to have any intention of altogether abandoning

EDWARD RYAN, *President*

Asiatic Society's Apartments,
June 3rd, 1835

Upon the first five paragraphs one or two verbal alterations only were suggested On the 6th, which originally ended, "but they would deeply regret if, in the pursuit of this favorite object, it were thought necessary or advisable to abandon, &c"

Mr COLVIN begged to propose the omission of the word "favorite," as applied in the above paragraph of the Address to the object of extending the means of English education It appeared to him to convey an unnecessary imputation, as if of prejudiced favoritism or partiality He would here say (alluding to some remarks which had passed in conversation), that he entertained as cordial a desire, as any one could do, to promote the literary purposes, with a view to which the Society was formed He, as a member of the Society, fully sympathized in the feeling which would seek to maintain the knowledge and cultivation of the oriental languages and literature, and he would readily join in an address to Government to obtain its patronage and pecuniary support for those studies, but he had hoped that the proceedings of the evening were to be free from controversy He had not been present at the meeting of the previous month, but he had seen with great gratification, that the proposition then adopted was for the preparation of a memorial, "which should avoid to the utmost all controversial points" He feared from the observations which had been made that he should be disappointed in this respect He had, however, been unintentionally led, by what had passed, into a digression, returning to the object for which he had risen to speak, he proposed the omission of the word "favorite" in the passage which had just been read

Mr W H MACNAGHTEN could not help expressing his astonishment, at the observations which had been made by the gentleman who had just sat down He had hoped that in this place at least, oriental literature would have found protection and favor that, however ruthlessly and successfully the opposition to this cause might have manifested itself in other quarters, here, at least, no enemy would be permitted to enter under the garb of a votary, and that this sanctuary of science might not be polluted by any unhallowed voice Now he was tempted to exclaim, *Procul, O procul este profani !* When he heard a gentleman coming forward with such an objection as has been made, he could not help ascribing it to something more than a dislike to the epithet What expression could possibly have been used more innocent or more appropriate ? Here was the fact before them, that the funds dedicated to oriental literature had been entirely carried off, that works of all descriptions, scientific as well as others, had been strangled in the very act of coming into the world, and thrown aside as useless and pernicious, and after all this, when they said that the authors of this to them grievous calamity were actuated by another *favorite* object, they were taken to task for the expression He really wanted words to express his surprise at such a frivolous objection being urged, and he trusted the Society would evince the same sense of it as he entertained, that it was wholly unworthy of being attended to

Mr COLVIN'S proposition was not seconded

Mr PRINSEP, thought that the terms ' deeply regret' were not nearly strong enough to show the sentiments of the Society—he would suggest ' *cannot see the necessity*' as more appropriate

This expression after some discussion was substituted

On the perusal of the 12th paragraph, which stood originally as follows

" The Society therefore earnestly beseech the Honorable the Governor General in Council, that *he will be pleased to solicit pecuniary aid from the Court of Directors, to be annually appropriated to the revival of the oriental literature, and the encouragement of learned natives*, and the Society will be happy to undertake the superintendence, &c "

Mr H T PRINSEP moved as an amendment, that the sentence be altered, (as it now stands in the memorial,) to convey a stronger expression of the Society's feeling on the recent measure

Mr COLVIN said, that he must oppose the amendment He took the liberty of again addressing the meeting, as he was desirous to record his opinion on the question which had now been brought under discussion He would not enter into an argument on the point of law which had been mooted He had himself always considered, and still considered, the orders of the Government to be fully consistent both with the terms and the spirit of the act of Parliament He must think it difficult to believe, that the legislature, in the first, and only specific appropriation which it had made with a view to the mental advancement of the Indian people, had intended not to entrust to the Government, to which it has committed the immediate control of these territories, the discretion of applying the fund as it might judge most expedient and practicable, in order to the cultivation of the most improved literature, and the communication of the most enlightened systems of knowledge, which its subjects might be found willing to receive at its hands It appeared to him a strange conclusion that it had been meant by the British Parliament to render compulsory the maintenance of a system calculated to perpetuate the ignorance and prejudices of the people—that it had been designed to fetter this Government and to restrain it from measures of improvement But he had said, that he would not go into a discussion of the point of law He would rather state what he considered to be the duty of the Society in regard to the address which was now to be presented Was it proper, he would ask,—was it respectful, in going up to Government as applicants for its assistance, that they should assert, by implication, that it had, in its late measure, deviated from its proper course ? Was that a subject which the Society ought to entertain at all ? Further, he would urge that it would certainly be most disadvantageous for their own purpose, were they, in appealing to the liberality of

Government, to express in any manner disapprobation of its proceedings Looking only to the motive of securing the success of the application which they were about to make, he would say, omit in the address all and every topic of controversy The Government, in receiving an address such as was now proposed, would appear called upon to vote its own condemnation He would, on these grounds, give his voice against the amendment

Mr MACNAGHTEN again rose, and spoke to the following effect

Mr PRESIDENT, we have been assured by Mr COLVIN more than once, that he is no lawyer He could not have asserted with equal truth, that he is no preacher, for he has favoured us with a very lengthy discourse on our duties, both to the Government and the people But I must take the liberty of differing with him altogether, as to the doctrines he has propounded We are an independent, and I trust, a respectable body, congregated for the purpose of promoting by every means in our power the cause of literature and science As the guardians of that sacred cause, it is not only our privilege, but our duty to appeal, respectfully it is true, but earnestly, to that power which is competent to rescue it from impending danger I would go further and say, that if the Government could be so infatuated as to declare open hostility against the languages and literature of the people of India, it would be an obligation, of which we could not divest ourselves without disgrace, to remonstrate against such a proceeding with all our energies If we think we have the law as well as the justice of the case on our side, no liberal, no equitable Government would be offended by our pointing it out —Mr COLVIN has again returned to the ground which he first took up, and has indulged in the use of slighting and contemptuous language as applied to oriental studies He has moreover asserted, that such sentiments are entertained by the natives themselves Gentlemen, I have now been resident in this country upwards of twenty-six years, and, I believe, I may say, that I have not been deficient in my attention to the genius of the people, their languages, their literature, their habits, or their prejudices, and I will venture to affirm, that nothing can be more without foundation than the supposition which Mr COLVIN appears to entertain Oriental literature has much to recommend it, and the natives of the country are passionately devoted to that literature It cannot be otherwise I cannot sit down without again expressing my astonishment, that this place should have been selected for such an attack If havoc and desolation rage around us, we may not be able to prevent it, but here in the citadel of our strength, that an effort at our overthrow should be made, is to me astonishing I have no fear, however, that it will be successful, or that there will be difference of opinion as to the character of the proceeding

The PRESIDENT, however unwilling to offer an opinion from the chair, must object to the amendment, because it appeared to entertain a doubt of the legality of the course pursued Government acted by advice, and there remained an appeal to the proper tribunals if any interest were aggrieved He was anxious to impress on the Society the necessity of abstaining from legal and political discussions, as quite out of character in a literary and scientific institution Otherwise they must lose many members who could not vote, nay, could not sit, where such topics were to be canvassed The case was strong enough of itself, the application for continuing the suspended oriental publications was a most proper object for the Society to urge, it should have his warmest support, provided it were unmixed with other matters which had been the subject of discussion elsewhere, and upon which the Government had expressed their opinion He had a very strong opinion on the necessity of excluding debatable topics of this nature from the Society, and if they were to continue such discussions he for one should be compelled to retire Literary and Scientific subjects seemed to him the only matters proper for discussion with them, except the little usual business which must of course be disposed of

Mr MACNAGHTEN, with the most unfeigned deference and respect to the learned President, must take leave to express his doubts, as to the doctrine which he had delivered, or at all events to seek for some explanation which might solve his difficulties He understood from him, that in this place, they were never competent to touch upon a question of law, and that if they did, those who are connected with

the legal profession must cease to be members of the Society This doctrine seemed to him to involve the necessity of submitting to every species of spoliation Moreover that they were not competent to advert in any way to the measures of Government Now it appeared to him, that they were not here as lawyers or as civil or military servants of the Company, and that when they met in this hall, they divested themselves of those characters, and appeared only in the character of the servants of science and of literature, the guardians of oriental learning, and the representatives of its interests both in Asia and in Europe In that sacred character they were bound to be vigilant and active Indeed, he could conceive cases involving questions of law, in which they should feel themselves compelled to act Supposing the Government were to be advised that they held a mortgage in the Society's premises, and that upon this hint, they were to proceed *instanter* to an ejectment Ought they in such a case tamely to resign their right, because there happened to be lawyers among them? He could understand the motive which should restrain particular gentlemen from expressing an opinion, but he could not conceive any circumstance which would justify their surrendering without a struggle the rights of their constituents Those constituents are, he said, the literary men of all nations They had an awful trust imposed upon them, and they must execute it faithfully and conscientiously as a great public body, without any personal motives, or any personal scruples

Mr PRINSEP felt great diffidence in expressing his dissent from what had fallen from the President, the more so, as he was himself a most unworthy member, whereas the President's merits towards the Society were of the highest character But he could not think, under British Government, any society, or even any individual could have the least hesitation in expressing respectfully an opinion, that the Government had misconstrued a law, when that misconstruction was likely to do injury to the rights or the feelings of so large a portion of its subjects as the native community formed in this country No wilful error or wrong was imputed to the Government but surely it was not too much to say, as he was confident was the case, that Government had in this instance been ill-advised and misled He did not speak as a lawyer, but as a member of this Society, whose position in respect to the literature of India had been well described by Mr MACNAGHTEN That there could be no possible offence to Government in so expressing themselves he felt assured, by seeing members and high officers of the Government ready to join in so doing He was somewhat surprised at what had fallen from Mr COLVIN, as to the ancient literature of India, being calculated only to perpetuate idolatry and superstition What would be thought, if England had possessed herself of Greece, a part of which was under her dominion, and had bestowed funds for reviving its language and literature,—would any one be listened to who should urge, that with the language of Greece one would be reviving her mythology? The most advantageous thing for the advancement of European literature in India was to revive that of the country, and place them in contrast side by side it was easy to see which must then prevail He did not think the Society should take so humble a tone as to ask, as a charity, that which Parliament had given as a right, and would rather not succeed in the object that all had equally at heart, than take it in the shape of an eleemosynary donation

Mr H T PRINSEP quoted the words of the act, which he believed had been grounded on a minute of Mr H COLEBROOKE'S, specially pointed to the literature and learned natives of the country He thought there could be no doubt as to the meaning of the clause, and if such were entertained by any present, he should not hesitate to take the votes of members as to the construction to be put upon the words Entertaining this opinion, he thought the Society ought to have no hesitation about expressing it, and as for the fact stated, that the Government had put a different interpretation upon the law, he knew not how the Society could know that these questions had ever been determined by the Government. But even if this point had been so ruled, that was no reason why the members of this Society, if their opinion was clear as to the legal rights of this literature, of which they were the patrons and protectors, should not express that opinion even to the Government He was quite sure it was the general feeling, that the grant was made by Parliament to the literature of India, which ought not to be robbed of

the provision so made to it By the amendment, it was intended to express this as delicately and respectfully as possible

Sir J P GRANT thought it right to state, that in voting for the amendment, he did not mean to give an opinion upon the question of law He did not think that the amendment went to express any opinion upon the question of law, and if it did, most certainly he neither would nor ought to vote upon it It merely, in his opinion, asked of the Government to give its consideration to the question, and in case they should be of opinion that oriental literature had not a legal and parliamentary claim under the words of the act, then to make a new and specific grant of funds for this important purpose

Mr W GRANT was not disposed to blink the question which the Society wished to bring under the reconsideration of Government, and did not see that any disrespect was implied in urging, however strongly, such reconsideration The Society had for a long time believed, that a particular fund was appropriated by Parliament to objects in a manner confided by the public to the Society's peculiar care, and they now learned that this fund was no longer to be so applied The Society was bound to undertake the cause of oriental literature, and to urge Government to reconsider a resolution so inimical to it And if upon serious reconsideration, Government should continue to be of opinion, that no fund was by law appropriated at present to its conservation, then to urge an application to the proper quarters for a fund which should be so appropriated

Mr COLVIN asked Sir J P GRANT, whether the words of the amendment which he read did not at least by implication convey an opinion upon the question of law

Sir J P GRANT said, that in his opinion they did not, but that the words in the Act of Parliament being such as they had that night been stated to be, the amendment suggested to the Government, that it was a grave question, of which it desired their reconsideration, and upon this view he was prepared to vote for the amendment, but the suggestion being made that it might be otherwise interpreted, he should not vote

The amendment was then put and carried The revised memorial was once more read through, and, on the motion of Mr H T PRINSEP, seconded by Bábu RASUMAY DUTT, it was adopted nem con

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Read a letter from Captain WADE, enclosing one from the Chevalier VENTURA, acknowledging his election as an honorary member

Read extract of a letter from Lieut A BURNES, enclosing copies of desiderata in Botany from Professor GRAHAM, and in Geology from the London Society

Read a letter from THOMAS DICKENSON, Esq Secretary to the Bombay branch of the Royal Asiatic Society, acknowledging the receipt of M. CSOMA's Tibetan Dictionary and Grammar, and expressing the best thanks of that Society for the same

Library

Read a letter from EDWARD T BENNETT, Esq Secretary to the Zoological Society of London, forwarding its proceedings for the years 1830, 31, 32, and 33, with the 2nd part of the 1st volume of their Transactions, for presentation to the Society

Read a letter received through M L A. RICHY, from Monsieur GARCIN DE TASSY, forwarding for presentation copy of a work entitled "Les Œuvres De Wali, *(Dewán-Wali,)* recently published by himself in Hindustani at the royal press of Paris

The Indian Journal of Medical Science, No. 18, was presented by the Editors.

Meteorological Register for April, 1835, by the Surveyor General.

The following books were received from the book-sellers

Lardner's Cabinet Cyclopedia—Simson's Roman Empire, vol. 2nd.

———————, Germanic Empire, vol 1st

Library of Useful Knowledge—Natural Philosophy, vol 3rd

A List of the Pali, Burmese, and Singalese works, in the Burmese character, (some with Burmese interpretations) in the Asiatic Society's library, was submitted, and ordered to be printed in the out-coming catalogue.

Museum and Antiquities

A model of the Táj Mahal at Agra, in ivory, was presented on the part of Messrs W CARR and J PRINSEP

A note from the Baron Von HUGEL, on the variance of the Tope at Sárnáth, from the Dehgopas of Ceylon, was read

[This will find a place in a future number]

A letter from Col S P STACY announced, that he had despatched for the inspection of the Society, to the charge of their Secretary, his very extensive collection of Bactrian, Indo-Scythic, ancient Hindu, and Muhammedan coins, of which he also forwarded a detailed catalogue

This collection is more than usually valuable from its having been made principally in central India, and it is mainly rich in Hindu coins, of which it will serve to devolope many series with names hitherto unknown

Physical

Specimens of Copper Ore from the Ajmír mines, with a descriptive account by Captain DIXON, addressed to the Governor General, were presented through Captain SMYTH, Mil Sec G G

An account of the bearded vulture of Nipal, *Gypaetos barbatus*, by Mr B. H HODGSON, was submitted, with an accurate painting by his native artist.

Mr HODGSON is in possession of upwards of 2000 illustrations of the Fauna, and the Ornithology of the valley, which he is now seeking to publish in a worthy manner, in conjunction with eminent naturalists at home The plates and descriptions of the Mammalia are already gone to England, and the others will soon follow The whole will form a memorable monument of his zeal and indefatigable industry

Extracts of a letter from Professor WILSON were read.

The Ashmolean Society, is anxious to obtain through the Asiatic Society, an entire skeleton of an alligator, for the purpose of perpetual comparison with the fossils of the Saurian tribe at home An inquiry has arisen which can be solved only in this country, Do Elephants shed their tusks? The immense supply of them brought from Africa to England, if derived from the death or destruction of the animal, must it is thought soon lead to its extermination

[Mr WILSON, has, we are happy to remark, prepared the *Vishnu Parána*, the *Sankhya Chandrika*, for the press, and only waits the casting of a new fount of type The Hindu theatre has passed through a new edition MOORCROFT's Journals are still in MURRAY's hands, and the bust not commenced upon, by CHANTREY]

Notice on the fœtus of the basking shark *(squalus maximus)*, and a preserved specimen, were submitted by Dr J T PEARSON

A paper was submitted by Mr F. G TAYLOR, H C Astronomer at Madras, on a new method of ascertaining the error of collimation in astronomical instruments by reflection from a surface of the mercury

[This very valuable and simple method is described in the present number]

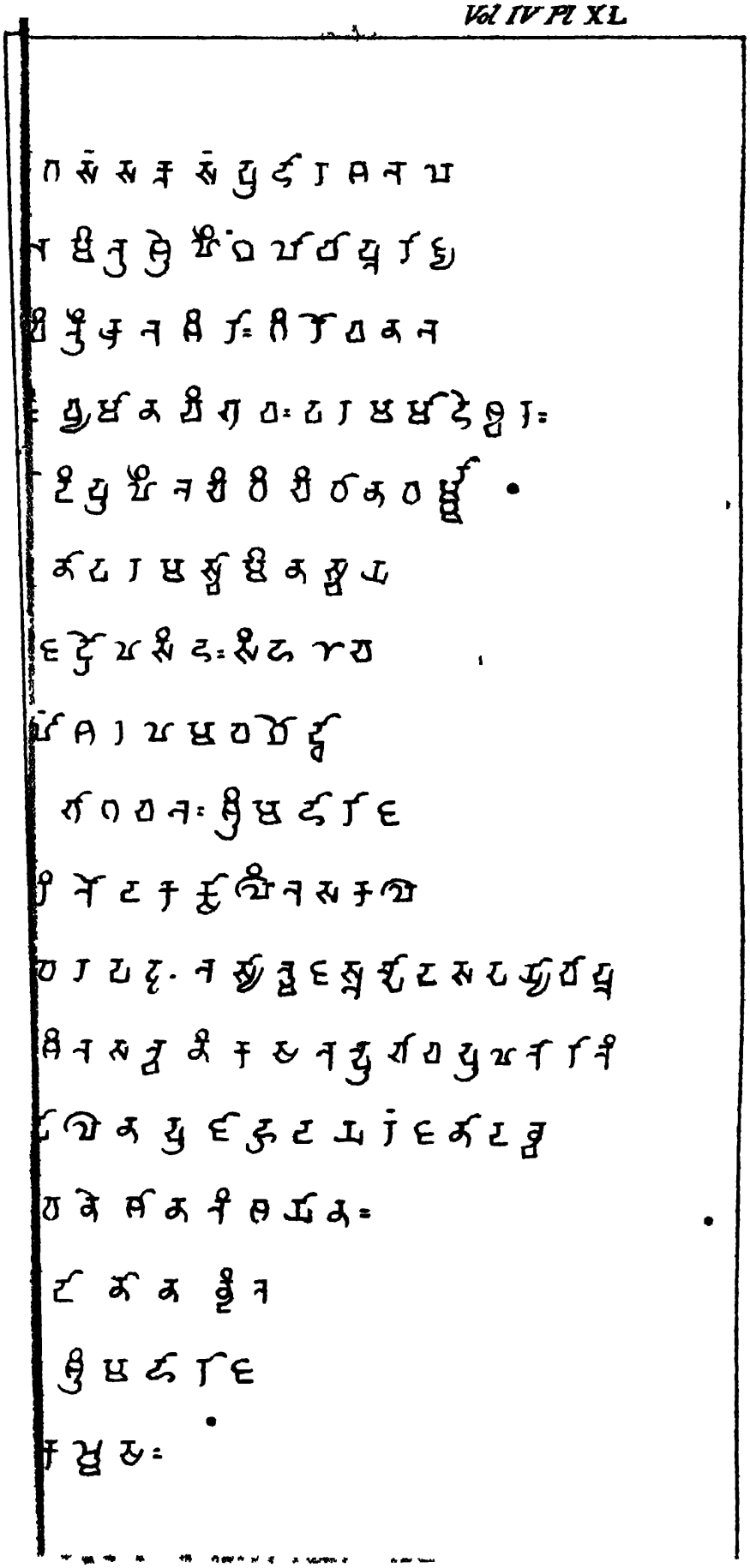
A note on the mummy brought by Captain ARCHIBOLD from Egypt was submitted by Dr EVANS

From the lateness of the hour the reading of the papers presented was postponed to the next meeting.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of May, 1835

Day of the Month	Observations at 10 A M							Observations at 4 P M							Register Thermometer Extremes		Rain	Wind			Weather		
	Standard Barometer at 32°	Wet Barometer, do	Aqs Ten deduced	Ther in air	Diff or M T Depress	Leslie's dif Hygrom	Hair Hygrometer	Standard Bar at 32°	Wet Bar at do	Aqs Ten deduced	Thermometer in air	Different.	Leslie's dif Hygrom	Hair Hygrometer	Cold on roof	Heat in sun		Morning	10 A M	Evening	Morning	10 A M	Evening
1	29,806	28,506	1,300	86,3	8,4	8,1	89	,670	,234	,436	89,8	13,8	13,5	75,0				S	w	w	clear	fair	cumuli
2	,780	,458	1,322	87,1	7,3	7,0	91	,664	,198	,466	91,5	11,6	11,3	82,0				se	sw	sw	do	fine	fine
3	,768			87,0				,635										ne			misty	do	do
4	,742	,377	1,365	88,4	8,0	8,0	89	,636	,156	,480	91,4	11,1	11,2	83,				S	sw	sw	light clds.	cumuli	do
5	,797	,470	1,327	87,9	8,7	8,0	90	,675	,200	,475	91,0	14,1	14,5	76,				o	nw	w	clear,	fine	hazy sky
6	,782	,456	1,326	87,5	11,3	10,8	84	,671	,287	,384	90,8	13,4	13,2	80,				n	sw	se	cloudy	hazy	fine
7	,770	,396	1,374	88,9	9,1	8,4	89	,671	,398	,273	86,5	7,4	9,3	90,				se	s	se	clds.and mist	do	dull
8	,794	,471	1,323	87,5	7,1	6,7	93	,680	,356	,324	87,9	7,8	8,6	89,	74,8	115,8	0,75	E	se	se	cir cumuli	threatening	over cast
9	,784	,490	1,294	87,3	7,2	6,8	92	,679	,322	,347	88,3	8,6	9,5	88,	73,5	105,0		E	s	sw	do	hazy	cumuli
10	,776			78,9				,678	,436	,242	83,4	3,3	4,1	99,	73,0	76,5	1,75	SE	SE	e	very hd rn.	all day	and night.
11	,718	,576	1,142	83,3	4,7	2,7	99	,669			72,0				73,0	81,5	12,00	S	S.	s	sd th lgt rn	storm	cloudy
12	,662	,558	1,104	81,7	3,6	3,2	99	,5.3	,369	,163	83,5	4,6	4,5	98,	72,0	98,2		o	se	nw	overcast	hazy	gathering
13	,592	,480	1,112	82,0	3,0	3,3	99	,498	,322	,176	84,1	5,6	5,4	96,	74,0	106,8		nw	nw	nw	rain.	do	hazy c c
14	,622	,424	1,198	84,3	5,6	5,3	95	,543	,348	,195	85,3	5,7	5,8	95,	74,7	126,2		n	sw	se	hazy	gathg clds	cir cumuli
15	,680	,480	1,200	85,1	4,5	4,4	98	,546	,141	,405	89,4	9,1	9,1	89,	76,4	110,1		s	sw	se.	fog	blowing stg	cumuli
16	,594	,284	1,310	87,1	5,2	5,4	96	,486	,147	,339	88,6	5,6	5,7	96,	79,5	102,5		S	sw	se	scud cumuli	cumuli	do
17	,530			85,8				,433			86,0				81,5	109,5		S	S	S	do	cirri	fair
18	,497	,135	1,362	88,5	5,1	5,3	97	,406	,886	,520	92,3	7,7	7,5	97,	80,3	117,0		S	S	se	hazy	fine	do
19	,536	,140	1,396	89,5	5,6	5,9	95	,491	,990	,501	92,0	7,9	7,3	92,	81,0	101,6	1,15	SE.	S	s	cloudy	hazy	cum hazy
20	,734	,418	1,316	87,7	5,4	5,7	95	,554	,181	,373	90,3	7,2	7,0	93,	71,1	108,6		o	ne	se	do	cloudy	gathering
21	,712	,370	1,342	88,0	8,4	8,8	88	,586	,162	,424	90,3	9,2	8,6	88,	74,5	115,6		ne	S	sw	clear	fine	fine
22	,634	,346	1,348	[illegible]	5,7	5,8	95	,580	,126	,454	91,0	9,4	9,1	88,	79,1	113,0		S	se	sw	do	cir cumuli	do
23	,734	,406	1,328	87,9	7,0	7,2	93	,635	,196	,438	90,8	10,8	10,5	84,	79,0	110,1		S	sw	sw	cum cirri	hazy	do
24	,750			87,0				,610			87,2				80,3	109,8		SE		S	overcast	cloudy	cloudy
25	,608	293	1,315	88,9	6,7	6,9	93	,486	,118	,368	91,7	8,1	7,9	91,	79,8	103,6		S	S	S	cumuli	cumuli.	do
26	,562	,246	1,316	88,9	6,3	6,6	94	,528	,096	,432	90,8	7,4	7,7	91,	72,2	111,6	0,05	S	S	se	do	hazy	do
27	,687	,424	1,263	87,0	6,0	6,5	92	576	,218	,358	89,2	7,8	7,1	89,	77,2	114,8		E	ne	se	overcast	do	misty sky
28	,649	,299	1,350	88,3	5,7	5,7	95	,519	,114	,405	90,2	8,3	8,2	88,	77,0	122,5		E	ne	n	cumuli	do	cir cumuli
29	,609	,284		88,2	7,8	7,4	90	,456	,120	,336	89,9	5,7	7,0	91,	76,8	133,0	0,10	ne	ne	se	fine	cumuli do	stratus rain
30	,583	,296	1,287	87,6	7,0	4,2	93	,496	,230	,266	87,1	4,1	6,3	95,	76,8	98,5		ne	ne.	ne	do	stratus nim	cir stratus.
31	,585			82,7				,520							77,0	118,9	0,05	n	N	o.	slight rain	showery	showery.
Mean,	29,683	28,388	1,293	86,8	6,5	6,3	93	,577	,206	1,368	88,3	7,5	7,6	90	76,4	108,7	15,85	southerly			rain early, and very heavy		

The Barometer registered on Sundays is a different instrument, but it agrees with the other within ·01 inch, the thermometer accompanying it shews a much lower temperature in the dwelling house than at the Mint, where the heat given is that of an open laboratory



Compound consonants
with and without vowels annexed

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
श्री	श्री	स्व	स्वि	प्र	त्र	त्न	ण्ड	क्त
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ब्ध	र्ज्ज	भृ	प्ता	ज्य	कृ	च्छु	व्य	श्व
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
न्वा	र्म्म	स्थ	द्धी	द्रे	त्वो	ल्प	ह्र	ध्रु
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ल्म	क्ष	ण्य	स्फ	स्मृ	म्य	ब्द	य्य	द्भ
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
न्ह	स्र	प्ल	क्ष्म	ष्म	म्न	ह्वृ	द्य	ग्न
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ज्ञ	क्र	त्क्ष	ब्र	ह्म	स्क	तृ	श्र	स्य
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
त्प	स्त्र	त्व	हृ	त्प्र	च्च	त्य	श्म	स्म
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
क्प	न्न	च्च	श्च	ध्य	न्स	त्म	क्र	ष्ट
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
स	ण्ण	तृ	द्द	ष्ठ	थ्व	च्छ्र	न्ध	द्म

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JOURNAL

OF

THE ASIATIC SOCIETY.

No 45 —*September*, 1835.

I — *Account of the Inscriptions upon two sets of Copper Plates, found in the Western part of Gujerat By* W H WATHEN, *Esq Persian Secretary to the Bombay Government*

[In a letter to the Secretary of the Asiatic Society]

Several years since, I procured two sets of copper inscribed plates, one of which had been discovered by some laborers employed in digging the foundations of a house at *Danduca*, in the Peninsula of *Gujerat*, and the other in a similar manner, at *Bhavanagar*, in the same province the inscriptions being, however, in a character unknown to the learned on this side of India, I found it impossible at that time to decypher them

Encouraged, however, by the very interesting discoveries brought to public notice in your valuable Journal, as connected with the hitherto unknown character of the inscriptions on the Allahabad pillar, and the recent success of the Reverend Mr. STEVENSON, I again endeavoured to decypher the two inscriptions, in which I derived much assistance from the alphabet given in your number for March, 1834, and having observed a repetition of the same letters in many parts of the inscription, I concluded these were the titles preceding the names of the kings of the dynasty, to which the prince making the grant belonged

In consequence, I found from your key the words *Raja* (ᳵ ᳶ), and looking for *Maha*, I discovered that the (ᳶ) of the inscription was *m*, instead of *sh*, which the alphabet given in the Journal would have made it The title *Paramêswara* next struck me, and led to the discovery of *Parma Mahesvara*, and gave me a clue to the (ᳵ) p, of the character used, I had previously made out *Svasti*, of the com-

mencement, but it was long before I could understand the vowel mark *i*, (ॐ) which I took for *anuswara*, after these, and a few other letters had been ascertained, the first of the inscriptions was easily decyphered, with the aid of a learned pandit

The second was more defaced, and after the greatest trouble, a part of it still remained unintelligible, the letters having become obliterated by the effects of time and damp

They are both grants of lands to priests, the first is about fifteen hundred years old, and the date of the second, some hundred years subsequent

Thinking that an account of these inscriptions, and of the character in which they are written, may be interesting to some of your readers, and throw some additional light on the ancient history of the west of India, I have ventured to trouble you with the accompanying paper, for insertion in your Journal

A translation of the inscription A is transmitted, and the substance of the other will be given in the accompanying observations W H W

The character in which these grants are written, is evidently derived from the more ancient one which is found in the caves of *Kaneri*, of *Carli*, and *Verula* (Ellora), on this side of India, it also resembles that of the cave inscription decyphered by Mr Wilkins in the first volume of the Asiatic Researches

With the view of facilitating the future researches of antiquarians, who may meet with the same description of writing, a comparative alphabet of this character and *devanagari*, (No 1) and a fac-simile of one of the inscriptions, interlined with the modern *devanagari*, (No 2) are annexed*

One original character being that found in the caves, appears to have first existed throughout the western parts of India, that is in the *Dakhan*, *Konkan*, *Gujerat*, and perhaps more generally It seems to have undergone gradual changes, until about two centuries subsequent to the æras of Vicra'maditya and Saliva'hana, an alphabet nearly similar, or identical with that at present noticed, would appear to have been introduced In order to shew that there is considerable ground for

* See Plates XL and XLI We have separated the modern Sanscrit interlineation, which permitted of being set up in type, giving figured references to the lines of the more ancient Nágari lithographed in Plate XL We have also ventured to omit the 3rd and 4th pages of the lithographed Alphabet, containing the compound consonants with their several vowel marks, as these combinations will be obvious to those who know the letters, and have the necessary examples before them in the inscription itself —Ed

such a supposition, copies of as many of the various cave characters, on this side of India, as could be easily procured, were collected and arranged in the order of what appeared to be their relative antiquity

Selections from these, and also from grants of subsequent date to those which are here principally treated of, have been made to give an idea of the manner in which the ancient writing has gradually been changed to its present form these are all taken from copper-plate and other inscriptions (which are deposited in the Museum of the Bombay branch of the Royal Asiatic Society) From one of these it appears, that up to *Saca* 730, or A D 808, no very material difference in the character had taken place The accompanying lithographic plate (No 3), contains specimens of varieties of writing from the most ancient times to the present*

The hope of meeting with a key to the alphabet now decyphered, led to references to those of Tibet and other countries, and a strong similarity was remarked between it, the *Kawi* (*Kávya Bhasha*) character of Java, used in that country when under the government of its Hindu conquerors, the *Pali* of Siam, and the alphabet of Tibet, from each of these, a few lines have been copied, by reference to which, the close resemblance of many of the letters to those of the inscription (No 2), will be apparent

Several of the provincial alphabets also have been evidently taken from this source, long before the remodeling of the present *devanagari* a few of the most striking coincidences are also given in the same plate with the above (No 4)

The resemblance of this character to those of Tibet, and the sacred alphabets of Siam and Java, may perhaps tend to throw some light upon the æra of the conquest of Java, Sumatra, and several of the eastern islands by the Hindus, and also on that of the introduction of the Buddhist religion into Tibet, and the countries eastward of the Brahmaputra

The contents of these inscriptions, as tending to elucidate the ancient history of Western India, at the commencement of the fourth century of the Christian æra, are of some interest, as will be pre-

* We defer the publication of these comparative alphabets, because we think they may be rendered more complete by the addition of those to which we have access on this side of India Such a palæographical table has been long a desideratum, and Mr WATHEN's contribution will furnish a considerable portion of the list Our recent inscriptions from Shekáwat, and Benares must, however, be added to complete it, and the various *Páli* offsets from the *Magadhi* require to be more fully developed —ED

sently detailed a list of the princes enumerated will be found in the Appendix, (No 5)

In the first inscription, as well as in the second, the origin of this dynasty is traced to BHATARCA SENÁPATI, who is said to have established his power by signal bravery and prowess his capital named *Valabhipura**, is also expressly mentioned in the first grant, both the founder of this sovereignty, and two first successors, did not take the title of king, but *Senapati*, or General, whence it may be inferred, that they were under a paramount sovereign, by whom the province of *Gujerat* was committed to their charge, and it is stated in the description of the fourth prince of this family, that he was raised to the royal dignity by "the great monarch, the sole sovereign of the entire world," meaning India

The third in succession to him, named SRIDHARA SENA, would appear to have thrown off all dependence on this paramount sovereign of *Ujayana* or *Kanouj*, for by the date of the first inscription, the *Valabhi Samvat* or æra would appear to have been instituted in his reign, its date being *Samvat* nine this circumstance induced the belief, at first, that the æra referred to was that of VICRAMÁDITYA, until on referring to the 1st volume of TOD's Rájasthan, the existence of a *Surya-vansa* dynasty in *Gujerát*, whose capital was *Valabhipura*, and title "*Bhatarca*," and also of a *Samvat*, or æra peculiar to those kings, as proved by Jaina legends, and inscriptions found at *Somnáth*, *Pattan*, &c. shewed that these grants must belong to those princes and their æra alone

Colonel TOD established, from the materials already mentioned, the particulars of which may be seen on reference to his work†, the following historical data

1 The emigration of a prince named KENEKSEN, of the *Surya-vansa*, or race of the sun, from *Koshala*‡ *dèsha*, and his establishing himself in *Gujerát* about A D 144

2 The institution of an æra, called the *Valabhi Samvat*, by his successors, who became the independent kings of *Gujerat* the first year of which æra was the 375th of VICRAMÁDITYA, or A D 319.

3 The invasion of the kingdom of the *Valabhi* princes by a barbarian force, the destruction of their capital *Valabhipura*, in A D 524, and the removal of thes eat of government to the north-eastern part of *Gujerát*, most probably at first to *Sidhapura*, about A D 554

The inscriptions confirm, in a singular manner, these several epochs.

* In *Pracrit*, it is written with a *b*, "*Balabhi*"

† See the chapter entitled "Annals of Mewár" ‡ The present Oude.

The first inscription is dated 9th *Valabhi Samvat*, corresponding with 384 of VICRAMA'DITYA, and A D 328

Now allowing twenty years for the average reign of the six princes of the first inscription, this will give 129 years for the interval between SRIDHARA SENA, in whose reign this æra may be supposed to have commenced, and BHATARCA SENÁPATI, the founder of the dynasty, which will place him as having lived in A D 190, or within forty-six years of the time specified by TOD, as that of KRNEKS'EN's establishment in *Gujerát* That *Bhatarca* was a family title, and not the real name of this chief, is shewn by its being alone used in the seals affixed to both the inscriptions

From the second inscription, we have a long line of princes, the last of whom, SILÁDITYA MUSALLI, would appear, from an allusion therein, to have removed the capital to *Sidhapura*

Taking the number of kings, whose names are given subsequent to SRIDHARA SENA, the founder of the *Valabhi* æra, at twelve, and the length of their reigns at an average of twenty years each, this calculation will shew a term of about 240, or more years, to have elapsed from this time, to that of SILÁDITYA MUSALLI of *Sidhapura*, or A D 559, about thirty-five years after the sack of *Valabhipura* by the barbarians

On referring to the list of kings, another of the name of SILÁDITYA, it will be seen, just preceded the prince who made the grant contained in the 2nd inscription, whose reign will thus approximate to A D 524, stated in the *Jaina* legends to be the date when the capital was surprised by a foreign army From the same source also, we find the name of the prince who then reigned, to have been SILÁDITYA, as above

These coincidences are curious, and tend to confirm the authenticity of those fragments of early Hindu history, which TOD has so carefully collected

The *Jaina* historical legends all mention the kings of this dynasty, and their æra, the *Valabhi Samvat*, the capital, from its geographical position, would appear to have been the Byzantium of PTOLEMY, its kings were of the dynasty called by foreigners the *Balhára*, which may have been a corruption of the title *Bhatarca**, or derived from the adjoining district of *Bhala*, and *Rai* or prince, the absurd manner in which Hindu names were, and still are, corrupted by the Arabs, and other foreigners, may easily account for the difficulty of reconciling real names with their corruptions

* Bhatarca, literally means cherishing sun, it is a royal title.

It is a singular circumstance connected with the destruction of *Valabhipura*, that it would appear to have been conquered by a *Mhlechha*, or Bactro Indian army, which, it may be presumed, came from a Bactrian kingdom then existing, in which were probably comprised the present *Multan, Sindh, Cachha*, and perhaps many other provinces, whether this state became subsequently divided into several petty principalities, one of which held the southern part of *Sindh* and *Cachha*, is a query which remains to be solved, the southern part of *Sindh*, however, has been known from the most ancient times, by the appellation of *Lar*, which would be in Sanscrit *Larica* now the kingdom of Lurike is mentioned expressly by PTOLEMY, but is made to comprise the coast of *Gujerat*, which might have been conquered by it, the strongest fact in support of this theory is that many Bactro-Indian* coins, with the head of the prince, evidently of inferior Greek workmanship something similar to those found at the *Manikyala Tope*, &c have been found in great numbers in *Cachha*, and in parts of *Saurashtra*†

It may be here mentioned, that it is from this very family of *Valabhipura*, that the legends of the present Ránas of *Udayapur* (Oodipoor) deduce their descent

After reigning some years in the north of *Gujerat*, the power of the dynasty was destroyed, its kingdom dismembered, and the city of *Anhulwara Pattan* became the capital, under the succeeding dynasties of the *Chawara* and *Chalukia* (vulgo *Solanki*) races

Both of these grants convey fields to brahmans as religious gifts The lands granted in the second inscription are stated to be situated in *Saurashtra*, and the donees are said to have come from *Girinagara*, (*Júnagur* or *Girnal*,) and to have settled at *Sidhapura*

Two facts, proving the great antiquity of these grants, are,—first, the measure of land being square paces, and the other, the existence of the worship of the sun one of the princes is named as being of that sect

In the course of antiquarian researches in India, we cannot but remark the very opposite course pursued by the *Jainas*, and the *Brahmans*, in regard to the preservation of historical legends, the *Brahmans* are accused by the *Jainas* of having destroyed, wherever they

* These are probably the Greek coins ARRIAN mentions as current at *Barigaza* or Broach [We shall, I trust, hear more of these coins from Col POTTINGER or Capt BURNES It is essential to know to which of our new series they belong —ED]

† Saurashtra, or the region of the worshippers of the sun, comprised the whole of the peninsula at present called Kathiawar

gained the supremacy, all the historical books in existence, which related facts anterior to the Musalman conquest, and we certainly do not find in the *Dakhan*, and other countries which have been long under their exclusive influence, any thing whatever prior to that period, whereas, on the contrary, the *Jainas* have treasured up in their libraries, every historical legend and fragment that could be preserved by them

May it not be inferred, that the brahmans, sensible of the great changes introduced by themselves to serve their own avaricious purposes, in the Hindu worship, at the æra of the Musalman conquest, neglected the preservation of the historical works which then existed, for as no king of their own faith remained, and their nobles and learned men must have lost their power and influence, no one was left who took any interest in their preservation, and it appears probable, that at such period, the *Puranas* were altered, and the novel practices now existing introduced, to enable these wily priests still to extort from the superstition of the people, what they had formerly enjoyed by the pious munificence of their own kings

The *Jainas* indeed assert, that the *Puranas* are mere historical works, that PARASURAMA, RAMACHANDRA, KRISHNA, &c were merely great kings, who reigned in *Oude* and other places, and have not the slightest pretensions to divinity

It may tend to confirm this theory, when we consider, that all the great reformers of the Hindu religion, whose doctrines and whose expositions of that faith are now followed, flourished about the same period when India was thrown into confusion by the invasions of those ferocious and fanatical barbarians, the Arabs, the Turks*, and Afghans, or from five to eight hundred years back, SANKARA A'CHÁRYA, VALABHA A'CHÁRYA, and RAMANUJA A'CHARYA, are all supposed to have lived between those periods

The great Hindu sovereignties falling to pieces, it became impossible to perform sacrifices requiring such prodigious expenditure†, the kings of foreign faith, no longer ruling by the Shastras, no check existed to the intermixture of castes hence the Warna Sankara, the *Kshetriyas* overcame, and fleeing from their foes, emigrated into various parts, laid down the warlike profession, and engaged in civil and commercial pursuits hence the present *Kshetri*, the *Prabhi*,

* By Turks, I mean natives of Central Asia

† Such as *Asvamedha*, &c, notwithstanding the assertions of the brahmans that these sacrifices of the horse, &c have been abolished in this *Kal-yuga*, we find instances of their performances recorded in inscriptions of 800 years and later date

the *Bhatti*, &c. once warriors, now scribes and merchants, the brahmans then, to raise themselves, and degrade the other castes, invented the fable of the destruction of the whole *Kshetriya* tribe by PARASURÁMA—a thing in itself incredible, but which story enabled them to substitute the Puránas, for the Vedas, in conducting the sacred offices, as connected with those classes

Further, if we inquire into the origin of many of the present most popular incarnations, as worshipped in western India, we shall no doubt trace them to the æra when the Puránas were interpolated and converted from mere historical legends into books of scripture A new impetus was thus given to superstition, by the discovery of these supposed miraculous emanations of SIVA, VISHNU, and GANESA, in the shape of *Khundeh Rao**, *Wittoba*, and the *Chinchwara Ganapati*

That great changes were introduced about the period of the Musalman invasion, into the practices of the Hindu religion, and that many as they now exist, are far different to what they were previous to that æra, are facts which will become better known and ascertained, as the antient history of the country becomes more cleared from the obscurity in which it is at present involved

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Translate of an ancient Inscription, dated 9th of the Valabhi Samvat, or A D 328, and found in digging the foundations of a house, near Danduca, in the Peninsula of Gujerat, or Saurâshtra

May prosperity (ever emanate) from the city of *Valabhi* ! The possessor of incomparable strength from the crowds of powerful enemies and friends, who prostrate themselves (before him), who earned glory in hundreds of battles fought in the countries of his foes, whose prowess and renown dazzled (the eyes of the princes of the universe), one enjoying the affections (of his subjects) by grants of rewards and honors, and also by courteous behaviour The acquirer of royal prosperity by the strength (aid) of his numerous dependents and attached friends, great adorer of *Mahesvara* (SIVA), (such was) Senápati BHATARCA (BHATARCA, the general-in-chief).

His son, with head tinged of a réddish colour, by constant inclination to the dust of his father's feet, and thus rendered pure the lustre of the nails of whose feet (as mirrors) surpassed the diamonds of SUCRA's diadem, whose riches were a constant source of relief to the poor, helpless, and destitute, (was the) great worshipper of *Mahèsvara*, Sri Senápati DHÁRA SENA (the general of the forces, DHÁRA SENA)

His younger brother with forehead wholly sanctified by prostrations at his (brother's) feet, a performer of all the acts of devotion accord-

* These are all peculiar to the *Mahratta* country, their temples being at *Jejury*, *Pundarpur*, and *Chinchwar*

ing to the precepts of MENU, and other holy saints, who, like DHARMA Rája (YUDHISTHIRA), has arranged all laws, received his inauguration to the throne, "from the Great Sovereign* himself, the sole monarch of the entire world," and whose accession to royalty was solemnized by unbounded gifts He was the great worshipper of *Mahesvara*, Sri Mahárája DRONA SINHA (the fortunate king, DROÑA SINHA)

His younger brother, who by the prowess and force of his sole arm, as a lion, conquered the hosts of his enemies, mounted on elephants, the asylum of all those who sought a place of refuge, conversant with all the various principles of science,—a celestial, all-yielding tree to friends and dependants, affording to all enjoyments according to their several wishes and tastes, great follower of BHAGAVATA (VISHNU) (was) Sri Mahárája DHARUVA SENA

His younger brother, all whose sins were removed by prostrations before the lotus resembling feet of his (elder) brother, by whose virtuous conduct, as a pure stream, the crimes of the *Kali yuga* were washed away , whose fame was celebrated by crowds of vanquished enemies, was the great adorer of the sun, Sri Mahárája DHARAPATIAH

Whose son acquired the chief of virtues by adoration of his father's feet, whose sword from his infancy was his sole helper , who distinguished himself as the touch-stone of bravery, the destroyer of multitudes of foes resembling intoxicated elephants The bright lustre of the nails of whose feet were reflected by the splendour of the crowds of his prostrate enemies, who fulfilled the import of the title "Rája," by delighting the hearts of his subjects, and affording them protection, (and by governing,) as commended in the *Smritis* (holy books) , who surpassed SVARA (Cupid) in beauty, the moon in splendour, the monarch of mountains (*Himalaya*), in fixedness of purpose In depth (of thought and counsel) the ocean, the teacher of the gods in wisdom, the great master of riches (CUVERA) in wealth, who relinquished as straw, the fruits of his enterprises, in his anxiety to remove the fears of those who sought protection, delighter of the hearts of the learned of friends and dependants, by bestowing riches far beyond their desires, who enjoyed all the gratifications and luxuries of the various countries in the world, as one who had himself travelled through them, (was) the great worshipper of *Mahesvara*, Sri Mahárája GRIHA SENA

His son, for ever fortunate by the rays proceeding from the diamond-like nails of his father's feet,—all whose sins are washed away by the pure water of the *Ganga* (Ganges) , whose wealth and prosperity are participated in by multitudes of friends and dependants —in whom all the qualities of beauty, have taken up their abode, as if by the desire of associating with the beauties of his form; who has astonished all those skilled in archery, by his wonderful natural skill, improved as it is by superior and constant exercises, the maintainer of all pious grants, bestowed by the will of ancient kings he that removes from power, those (evil ministers) who seek the ruin of his subjects ,—a unique example of the abode of wisdom and

* This evidently refers to some one of the successors of VICRAMA'DITYA and SHA'LIVA'HANA The *Pramara* or *Pouar* kings of Ujain or Canouj

prosperity, in one and the same person, whose renown is alone sufficient to destroy the power of his foes, whose royal dignity is hereditary,—great worshipper of *Mahesvara*, powerful wielder of the battle-axe, Srí Mahárája SRIDHARA SENA,—peremptorily issues these his mandates!

To those in office, and those unemployed, to the governors of towns, to the chiefs of districts, revenue officers, forest chiefs, protectors of the roads, &c. &c and all officers howsoever employed!

'BE it known to you! that for the increase of my father's and mother's holiness, for my own salvation, and for the sake of obtaining other objects of my heart's desire, in this and in the next world, I have granted fifty paces of land, (situated) at the southern boundary of the village of *Matsira*, and sixty paces of land near the northern limit of *Veraputri*, to a *Lodrita* brahman, learned in the *Rig-Veda* of the same *gotra* (family), as KAINA and others also a piece of land of fifty paces, on the western side of *Prathapura*, and eight paces near *Ishvara Deva Senak* is likewise granted to a *Rig-Veda* brahman, named DEVA SILA of the same *gotra*, as TRIVALAM BAYANA, &c (this part is very unintelligible in the original,) this land, with the hamlets and other things thereunto pertaining, with its earth, water, wind, sky, spirits, grain, and gold, is (hereby) given, with all that which may thereupon be produced

'All the ministers of state must avoid placing their hands on this, as they would on the hole of a serpent, for the constant and due performance of the five great sacrifices (naming them), I have given this, for as long as the moon, sun, seas, rivers, and this world shall exist, to be enjoyed by the descendants, sons, grandsons, &c By pouring out water, (it is) given up as a brahmanical gift, to be enjoyed on the terms usual with such grants, they may plough, cause to be ploughed, or give it away. No one should cause any hindrance (to this grant)

'Future pious kings, both of our family, and others, who will appreciate the fruits of a grant of land, should approve and maintain this my gift (Here the usual quotations from the *Maha Bhárata* are introduced, quoting the gift by king SAGARA, and shewing the sin of destroying such a grant of land)

'Written by the minister for peace and war, SCANNA BHATTA, *Samvat* 9, Vaisháca vadi 8 1, Mahárája SRI'DHARA SENA, the heroic, my pleasure! my hand!'

List of kings of the Valabhi or Balhára dynasty, as found in the two inscriptions

A. D. 144 or 190	1	Senápati BHATARCA.
	2	DHARA SENA
	3.	Mahárája DRONA SINHA.
	4	DHRUVA SENA, I
	5.	DHARAPATTAH.
	6	GRIHA SENA.

A. D. 300	7 *	SRI'DHARA SENA, I †
	8.	SILADITYA, I.
	9.	CHARAGRIHA, I
	10	SRI'DHARA SENA, II.
	11.	DHRUVA SENA, II
	12	SRÍDHARA SENA, II
	13	SILADITYA, II

At this part of the copper-plate the writing is so obliterated, that the names of two or three princes cannot be made out.

	16	Mahárája CHARAGRIHA, II
A D 524	17	SILADITYA, III
A D 559	18.	SILADITYA MUSALLI, IV.

The first two princes have the title *Senápati* alone. All those subsequent to No 3, *Mahárája* The whole had the title of "SRI' BHATARCA," and the device on their banner, was the "NANDI," or sacred bull of SIVA, as appears from the seals attached to both inscriptions.

II —*Synopsis of the Thár and Ghoral Antelopes. By* B H. HODGSON, *Esq , Resident in Nipal*

[In a letter to the Secretary As Soc read 7th Oct]

I beg to forward to you, herewith, synoptical descriptions of the Thár and Ghorál Antelopes, derived from careful examination of a great many individuals of both sexes, which were either alive or recently killed at the time of examination These descriptions are preceded by an amended definition of the group to which the animals belong, that given by SMITH in the English Regne Animal being so inaccurate, as to be calculated only to lead the inquirer astray. Mine, now proposed, is drawn from an intimate knowledge of three out of the four species comprising the group But it is probable that very much yet remains to be done before the vast genus Antilope can be successfully divided into subgenera, fitted either to illustrate natural affinities, or even to render perfect, facility of reference Mr OWEN has, since the publication of the English CUVIER, recast this entensive genus in a manner very different from SMITH's, though not, I think, superior to it. Considering, indeed, how extremely superficial is our knowledge of the greater part of this vast assemblage of the hollow-horned

* These seven are from the first inscription, the following from the second inscription.

† A D. 319 In his reign, the Valabhi æra is supposed to have commenced.

ruminants, it might be as well, perhaps, for our general classifiers, to bear in mind the Baconian adage, that "an over-early reduction of knowledge into methods generates acquiescence" in misleading systems of nature

My apology for the amended indication of the subgenus NÆMORHEDUS of the English Regne Animal, now attempted, is, that the celebrity of that work might fix and propagate errors which I happen to possess the means of correcting, and that, as I have an unusually complete knowledge of three out of the four species comprised in this group, my definition of it may perhaps stand the test of time, if the group itself be allowed to remain

Nipal, August 1835

English Regne Animal Synopsis

Sub-Genus XIII Nœmorhedus, SMITH.

Subgeneric character (*nobis*)

Structure assuming a caprine form, suited for heavy climbing, or for leaping, horns in both sexes, their cores hollow*, and connected with the frontal sinuses, but not porous, and only sub-cellular, inserted behind the orbits, short, conical, simply bent back, annulo-wrinkled, parallel to the plane of the face, and nearly so to each other, subremote at base, suborbital sinus, small, or wanting, no inguinal pores, tail caprine, ears longish, pointed, and striated, muzzle small, or none, knees callous? maned, hair of two sorts, and thick, or, of one sort, and spare, four teats in the females Reside in the mountainous and woody regions of the continent and islands of India, solitarily, or in small groups

Sp 1 A SUMATRENSIS *Cambing Ootan*

Sp. 2 A DUVAUCELII Variety of *Ghorál*!

Sp 3 A GUORAL Characters—extremely caprine, being allied to antelope only by its round and ringed horns Size small, attitude gathered, with back much arched, and structure adapted for leaping, limbs moderately stout and rigid, general form of the scull caprine, with the ridge line much bent, and the parietes depressed at a strong angle to the frontal bones, and no indentation before the orbits, fifty inches long, exclusive of the tail, and twenty-seven high, horns seated on the crest of the frontals, six inches long, the points inclined inwards, 20 to 25 annuli extending ⅔rds up the

* This, as a generic character, has been used to separate Capra and Damalis from Antelope, upon which I have only to observe, that I know four species still retained under Antelope, which have nevertheless hollow-cored horns.

horns, annuli crowded and vague, especially towards the bases, somewhat interrupted by faint longitudinal striæ, truncated, independant of each other, and equally developed all round, no suborbital sinuses, a half muzzle, upper lip clad, tail conico depressed, and only half nude below, fur of two sorts, abundant and loosely applied to the skin, a short, semi-erect mane on the vertex Knees usually callous and nude, but not congenitally so, colours of the animal rusty and brown, paler below, line of the vertex, tail, chest, and a stripe down the front of the fore legs and back of the hind, brown black, outsides of ears rusty, lips and chin rufescent white, a large patch of pure white at the junction of the head and neck, below, horns, hoofs, and muzzle, black, iris, dark hazel, eye, mean Inhabits juxta Himálayan region of Nipal Female smaller and paler hued, young, redder and no marks or mane

Sp 4 A THA'R, nobis The *Thár* of the Nipalese New Characters less decidedly caprine than in the last, very nearly allied to the *Cambing Ootan* Back straight, withers higher than the croup, and structure suited for heavy climbing, not for leaping, limbs very stout and rigid, with higher hoofs than in the last, the edges of which are raised above the pads General form of the scull cervine, with the ridge line *moderately* convexed, and the parietes *not* depressed at a strong angle to the frontal bones A deep indentation before the orbits Horns posterior to orbits, but below the crest of frontals, eight inches long, rather stouter and less falcated, than in the preceding, sub-divergent, with the points inclined outwards, 20 to 30 crowded annuli, extending ⅔rds up the horns, the annuli truncated, equal all round, independant, broken by decided longitudinal striæ, one inch below the eye, a suborbital sinus, opening on a nude space by a round puncture, and furnished with a fleshy thick gland secreting a viscous humour, as in Sumatrensis, no maxillary sinus, a half muzzle, larger than in the preceding, but existing only as a broad line in front of the upper lip, which is otherwise clad in hair Tail shorter, depressed nude below, fur of one sort only, scanty, harsh, and applied to the skin, a semi erect-mane, as in *Ghorál*, knees, callous, perhaps congenitally so Sternum not so, size large, 64 inches long by 38 high, and upwards of 200 lbs in weight Colour of the whole animal above, with the entire head and neck, jet black, on the flanks, mixed with deep clay red The fore arms and hams outside, as far down as the great flexures, clay red, nearly or wholly unmixed, rest of the limbs, hoary, or rufescent hoary outsides of ears, dark, chest, pale No stripes down legs, lips and chin dull hoary, and a stripe of pure hoary running

backwards over the jaws from the gape, horns, hoofs, and muzzle, black, iris, dark hazel, eye, mean

Female as large as male, and like him in all essential respects The young, paler, and mixed with gray.

Inhabit the precipitous and wooded mountains of the central region of Nipal, which they rush up and down with fearful rapidity, though they do not spring or leap well, nor are speedy

The *Thar* species are denominated *Sarau*, in the western parts of these mountains, where it is as common as in Nipal. The *Cambing Ootan* is its analogue in the Indian *Islands*, but the species is not found, I believe, in any other mountainous range of the continent of India

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III —*On the Wild Goat and Wild Sheep of the Himálaya, with Remarks on the genera Capra and Ovis By* B H HODGSON, *Esq Resident in Nipal*

In the way of classification, there are few objects, I believe, more important than the establishment of some distinctive marks to separate *Antilope*, *Capra* and *Ovis*. The best naturalists of the present day appear to think that M GEOFFROY's diagnosis of the former genus, viz cores of the horns solid, may be relied on But small as is the number of Antelopes accessible to me, I have proved with the saw, that in respect to at least four species, (viz *Chírú*, *Thár*, *Goral*, and *Duvaucellii*,) the fact is not so, all these four having sinuses in the cores of their horns, connected with the frontal sinuses and, if it be objected, that of three of these the character is confessedly osculant towards *Capra*, that cannot be urged against the fourth, which is a *Gazella* of H SMITH's group

It is certain, therefore, that solid horns constitute not an *invariable* character of the genus Antilope, and it is highly probable, that this character is *not* of *such general prevalence* as to warrant the distinction founded upon it

The truth seems to be this, that in *Antilope*, the bony nuts of the horns are of a compact structure, possessing at their bases sinuses of only limited extent, and nearly free from cellular partitions, whereas in *Capra*, and yet more in *Ovis*, the cores are porous and uncompact, and furnished at their bases with large sinuses, crowded with cells*.

On the present occasion, I do not propose to make any further mention of the genus *Antilope*, but to confine myself to some remarks

* The form of the scull a long vertical line, forms a much better diagnosis than the cores of horns.

tending to illustrate the distinctions between *Capra* and *Ovis*, and more particularly, to test the accuracy of those indications which are generally admitted by authors, by applying them to the wild species of either genus which belongs to the Himálaya

For the last two years, I have had alive in my garden, a splendid specimen of the mature male of each, and I have frequently compared them together in all respects of manners and of structure As the goat in question, as well as the sheep is new*, I will begin with a synoptical description of the two, and then proceed to notice the points of difference and agreement existing between them

Tribe CAPRIDÆ—H SMITH

Genus—*Capra*, Ditto

Species—C JHÁRAL. New, the JHARAL of the Nipalese

Affined to the Alpine *Ægagri*, and to *Jemlaica* Adult male, 50 to 56 inches long from snout to rump, and 36 to 40 high Head finely formed, and full of beauty and expression. Clad in close short hair, and without the least vestige of a beard, facial line, straight, ears small, narrow, erect, rounded at tips, and striated, eye, lively, between the nares, a black moist skin, nares themselves short and wide, knees and sternum, callous, tail, short, depressed, wholly nude below Animal of compact, powerful make, with a sparish, short, and bowed neck, deep barrel and chest, and longish, very strong and rigid limbs, supported on perpendicular pasterns and high compact hoofs, false hoofs conic and considerably developed, attitude of rest gathered and firm, with the head moderately raised, and the back sub-arched Shoulders decidedly higher than the croup, fore quarters superb, and wholly invested in a long, flowing, straight, lion-like mane, somewhat feathered vertically from the crown of the withers, and sweeping down below the knees, hind-quarters poor and porcine, much sloped off from the croup to the tail, and the skin much constricted between the hams behind, fur of two sorts—the outer hair of moderate harshness, nor wiry nor brittle, straight, and applied to the skin, but erigible under excitement, and of unequal lengths and colours, the inner, soft and woolly, as abundant as in the wild sheep, and finer, of one length and colour Horns 9 to 12 inches long, inserted obliquely on the crest of the frontals, and touching at base with their anterior edges, sub compressed, sub-triangular, and uniformly wrinkled across, except near the tips, where they are rounded and smooth, keeled and sharpened to the front, obtusely rounded behind. the

* My own imperfect account of both, in the Society's Transactions, is the only one extant.

edge of the keel not nodose, and usually but faintly marked by the continuation over it of the transverse wrinkles of the horns

The horns are divergent, and directed more upwards than backwards their points are slightly inclined inwards The colour of the animal is a saturate brown superficially, but internally, hoary blue, and the mane, for the most part, *wholly* of that hue, fore arms, lower part of hams, and backs of the legs, rusty, entire fronts of the limbs, and whole face and cheeks, black-brown, the dark colour on the two last parts divided by a longitudinal line of pale rufous, and another before the eye, shorter, lips and chin hoary, with a blackish patch on either side below the gape, tip of tail and of ears, blackish, tongue and palate, and nude skin of tips and muzzle, black, iris, darkish red hazel Odour very powerful in the mature male, especially at certain times Is found in the wild state in the Kachár region of Nipal, in small flocks or solitarily, is bold, capricious, wanton, eminently scansorial, pugnacious, and easily tamed, and acclimatised in foreign parts

REMARKS. *Jhárał* is closely affined by the character of the horns to the Alpine *Œgagri*, and still more nearly, in other respects, to *Jemlaica* It differs from the former by the less volume of the horns, by their smoother anterior edge, and by the absence of the beard,—from the latter, by horns much less compressed and nodose *Jharal* breeds with the domestic Goat, and perhaps more nearly resembles the ordinary model of the tame races than any wild species yet discovered. The western type of the Himálayan wild goat (called *Tehr*, at Simla and Musúri) has the anterior edge of the horns decidedly nodose, though less so than in *C. Jemlaica*

The Wild Sheep Genus—*Ovis*

Species—*O Nahoor*, mihi

The *Náhoor* of the Nipalese New? variety of *O Musmon*? Closely affined to *Musmon*, of which it is possibly only a variety Adult male, 48 to 54 inches from snout to rump, and 32 to 36 high. Head coarse and expressionless, clad entirely in close short hair, without beard on the chin or throat, or any semblance of mane Chaffron considerably arched. Ears medial, narrow, erect, pointed, striated. Eye dull, moist space between the nares, evanescent, nares narrow and long Knees and sternum callous, tail medial, cylindrico-depressed, only ½ nude below Structure moderately compact, not remarkable for power Neck sparish, bowed, with a considerable dip from the crown of the shoulders. Limbs longish, firm, but slender, not remarkable for rigidity, and supported on laxer pasterns, and on hoofs lower and less compact than

the g(ats , false hoofs mere callosities Attitude of rest less gathered and firm, with the head lower and the back straight. Shoulders d ıdedly lower than croup , fore-quarters not more massive than the hind, nor their extremities stronger Hair of two sorts—the outer hair, of a harsh, brittle, quill-like character, serpentined internally with the salient bows of one hair fitting into the resilient bends of another, but externally, straight and porrect from the skin, very abundant, and of medial uniform length all over the body . the inner coat, soft and woolly, rather spare, and not more abundant than in the Goat Horns, 22 inches along the curve, inserted high above the orbits, on the crown of the forehead, touching nearly at base with their whole depth, and carrying the frontal bones very high up between them , the parietals being depressed in an equal degree The horns diverge greatly, but can scarcely be said to be *spirally* turned They are first directed upwards, considerably before the facial line, and then sweep downwards with a bold curve the points again being recurved upwards and inwards They are uncompressed, triangular, broadly convexed to the front, and cultrated to the back Their anterior face is the widest, and is presented almost directly forwards , their lateral faces, which are rectilinear, have an oblique aspect, and unite in an acutish angle at the back They are transversely wrinkled, except near the tips, which are round and smooth Colour pale.

The colour of the animal is a pale slaty blue, obscured with earthy brown, in summer overlaid with a rufous tint Head below, and insides of the limbs and hams, yellowish white Edge of the buttocks behind and of the tail, pure white , face and fronts of the entire limbs and chest, blackish , bands on the flanks, the same, and also tip of the tail Tongue and palate dark Nude skin of lips and nose black. Eye yellow-hazel No odour Is found in the wild state in the Kachár region of Nipal, north of the Jhâral, amid the glaciers of the Himálaya, and both on the Indian and Tibetan sides of the snowy crest of that range Is sufficiently bold and scandent, but far less pugnacious, capricious, and curious, than the *Jhâral* Much less easily acclimatised in foreign parts than he is , in confinement more resigned and apathetic, and has none of the *Jhâral's* propensity to bark trees with his horns, and to feed upon that bark and upon young shoots and aromatic herbs. I have tried in vain to make the *Náhoor* breed with tame sheep, because he will not copulate with them The female of the species has the chaffron straight, and short, erect, sub-recurved, and greatly depressed horns The young want, at first, the marks on the limbs and flanks, and their nose is straight.

REMARKS. Differs from *Musmon*, to which it is closely allied, by the decided double flexure of the horns, their presence in the females, and the want of a tuft beneath the throat With reference to the imperfect account of the *Náhoor*, published in the Transactions, I should not omit to say, in conclusion, that the *Nahoor* and *Banbhèra* are separate species, the former being the Himálayan type of *Musmon perhaps* and the latter, certainly, that of *Ammon*

Having now completed the descriptions of the wild goat and wild sheep, I shall proceed to the exhibition of the points of difference and of resemblance existing between the two, beginning with the former.

GOAT	SHEEP
Whole structure stronger and more compact	Less so
Limbs thicker and more rigid	Feebler and more slender
Hoofs higher and more compact	Lower, and less so.
False hoofs well developed	Evanescent
Head smaller and finer	Larger and heavier
Facial line straight	Chaffron arched
Ears shorter and rounded	Longer and pointed
Tail short, flat, nude below	Larger, less depressed and ½ nude only
Withers higher than croup	Croup higher
Fore legs stronger than hind	Fore and hind equal.
Croup sloped off.	Not so
Odorous	Not so.
Nose moister, and nares short and wide	Less moist, and nares larger and narrower.
Horns of medial size, keeled and turned upwards	Horns very large, not keeled and turned to the sides
Eye darker and keener	Paler and duller
Hair long and unequal	Short and equal
Back arched	Back straight
Bears change of climate well	Bears it ill
Is eminently curious, capricious, and confident.	Is incurious, staid, and timid
Barks trees with its horns, feeding on the peel and on aromatic herbs	Does not bark trees, and is less addicted to aromatics
In fighting, rears itself on its hind legs, and lets the weight of its body fall on the adversary	In fighting, runs a tilt, adding hither the force of impulse to that of weight.

The goat and sheep have in common hair and wool, no beard, no suborbital sinuses; evanescent muzzle, no inguinal pores Horns in contact at top of head, knees and sternum callous, angular and transversely wrinkled horns, striated ears, two teats only in the females horns in both sexes, and incisors of precisely the same forms

Of the various diagnostics, then, proposed by HAMILTON SMITH, it would seem, that the following only can be perfectly relied on to separate *Ovis* from *Capra*. Slender limbs, longer pointed ears; chaffron

arched, nares long and oblique, very voluminous horns turned laterally with double flexures. I should add myself, the strong and invariable distinction,—males not odorous, as opposed to the males odorous of the genus *Capra* But, after all, there are no physical distinctions at all equivalent to the moral ones, so finely and truly delineated by BUFFON, and which, notwithstanding what H. SMITH urges in favour of the courage and activity of sheep, will for ever continue to be recognised as the only essential diagnostics of the two genera

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III —*On the Fossil Bones of the Jamna River By* EDMUND DEAN, *Serjeant, Sappers and Miners*

[Extract from a letter, dated 2nd April, 1834, accompanying the first despatch of specimens, read at the Meeting of the 3rd July, 1834]

I have taken the liberty of sending for your inspection some specimens from a collection of Jamna fossils, made by me during a period of nearly two years, that I was employed under Captain E SMITH, in removing the impediments to navigation in that river

I consider myself fortunate in having been able to procure several portions of human bones, in so perfect a state, as to enable an eminent medical gentleman to class the major part of them

With regard to the specimens before you, No 8, (an elephant's tooth,) resembles the 2nd and 3rd plates represented in plate x fig. 10 of PARKINSON's Outlines of Oryctology, and No 9, the 1st and 2nd plates of the same tooth, excepting that the number of the elliptic figures on the crown caused by trituration, is greater in my specimens, and that great difference in the thickness of the plates of this and the common Asiatic elephant, (a specimen of which I observe is in your possession,) which he appears to consider a distinguishing characteristic of the different species, is not so apparent in my specimens as it appears to have been in those of PARKINSON This difference, however, must be confined to the Asiatic specimens, as the length of his fossil tooth was eight inches, and it was composed of 13 plates, which would make two of them average 1·23 in : this, allowing for the very apparent diminution in thickness of the plates towards the rear, would make my larger specimen, which averages one inch, correspond nearly enough with the plates 2nd and 3rd of fig 10

Nos 10 and 11, (figs 1 and 2, of Pl xxxiii.) I have been led to suppose may have belonged to the species of tapir, the crowns of whose teeth are described as being divided into five transverse risings, and if by the enamel standing distinctly above the bony parts, the

term rising be understood, I consider this feature is pretty clearly indicated in the larger specimen, if they do not belong to this animal, I am utterly at a loss how to class them

Nos 14 and 15, I imagine, are portions of the jaws and teeth (broken off at the margins of their alveoli) of some extinct species of the Saurian order, differing in every material point from any species described by PARKINSON, the transverse section of either shewing no cutting ridges, and the longitudinal section of No. 15, plainly shewing from their curved formation, the impossibility of the teeth being shed, or renewed, as also the existence of a core without any cavity, whereas a peculiar feature of the whole crocodile tribe is, the teeth are never solid in the centre Could the larger one have belonged to that scarce monster, the Bhote of the Jamna? a species of crocodile, I believe, that has never yet been described

Of No 19, it will be of little use for me to take more notice, than by pointing out what appears to me to have been the outline of the crown of a circular cavity, in the centre of the tooth, which might, when perfect, have contained the nerve Should this prove to be the case, at least one-third of the tooth must have been broken off, and then the present surface would have been a fracture The exterior edges all round evidently present a decided fracture, but the interior surface (so beautifully irregular) has every appearance of the exterior enamel of a perfect tooth Supposing it to have been arranged in plates (of which however there is not the least trace), the decomposition of the crusta petrosa might have occurred here, as in the elephant, but the separation (except by force) would have been rendered impossible, by the texture of the enamel that surrounds it on three sides, which is sufficiently strong, even had the crusta petrosa been withdrawn, to have held it together It might be urged, that the exterior substance is not enamel, but an incrustation, this indeed might hide the disposition of plates, but I am inclined to believe, that the qualities of the whole and fractured parts are so intimate, that the position is untenable.

The teeth marked 0-2, 4, 6, and 16, have belonged to animals of the deer and ox tribes, but I have not the means of accurately classing them by comparison or otherwise.

No 44, (fig 18, Pl. XXXIII) has defied the anatomical abilities of every one who has hitherto seen it I have been able to form no opinion on it, never to my recollection having seen any vertebra in the least resembling it.

Specimens of Human Bones, sent Aug 1834*.

No 1 Supposed to be the remains of the humerus, consisting of the major part of the round head that plays in the cup of the scapula It was dug out from under a mass of clay at a depth of about 2 ft 6 inches

No 2 May either be a portion of the fibula, or of the ulna, of a child, or woman this I imagine may easily be decided by any anatomist. It must be of considerable antiquity, as the tube originally occupied by the marrow is completely filled with a hollow concretion or spar, externally solid, and taking the exact mould or form of the concave or inner figure of the walls of the bone In the interior hollow of this concretion a great number of very fine and sharp-pointed crystals occur, with their points or vertices apparently pointing inwards to a common elongated centre or axis, from which it would appear that the system of this concretion was either by the increase of the crystals in size, or by their gradual projection from the exterior inwards in a radiated manner, to fill up the cavity This specimen was found, and I have no doubt was petrified, amongst sand and shingle

No 3 Portion of the above, supposed to have belonged to a full-grown man

No 5 One of the metacarpal bones

Nos 46 and 47 Assimilate nearly with the 2nd and 12th dorsal vertebræ, but have belonged to different subjects (?)

No 15 Appears to be a molar nearly perfect, and the remains of another broken in its alveolus, with a portion of the jaw covering each, and to have belonged to some of the larger species of deer

No 17 Posterior extremity of a rib of a young camel, having the same peculiar concretion as No 34. (See postscript)

No 22 A portion of the jaw of a camel, containing one of the grinders.

No 34. The remains of the blade bone of the shoulder of a young camel, remarkable for the peculiar cement or concretion filling its cancelli, originally the depositaries of marrow

No. 18, (fig 4) Portion of the jaw of a pig, containing four grinders.

No 26 Extremity of one of the ribs, and No 23, portion of the plastrom or breastplate of the Cuchwa, or mud tortoise of the Jamna

No 62. Portion of a rib of a buffalo, procured at a greater depth

* We have thought proper to insert this notice, in continuation of the preceding, as the specimens referred to are deposited in the Museum, and have been imagined by more than one person to be human. See the following note.

(about six feet) *under* the clay than any specimen in the collection It was not procured *in* the clay, but imbedded in a layer of sand, which the clay had enclosed in its deposit.

[The remainder of Serjeant DEAN's collection was presented early in the following year, reaching its destination in May last. The following is his description of its contents]

17 pieces, No 1 Teeth and fragments of bones of camels

27——, No 2 Ditto and ditto of ditto of bullocks and buffaloes

11——, No 3 Portions of bones of elephants

10——, No 4 Ditto of teeth of ditto and piece of tusk of hippopotamus, (now recognized to be such)

5 pieces, No 5 Portion of tufa formation, occupying the place of the marrow in the tusk of an elephant These pieces are all that remain of a very large tusk taken out of the river at *Adhâe*, from beneath a plate of *kankar* the bony part of the tusk was fossilized, but not petrified, and from its appearance, the sepoys engaged in the work during the absence of the European non-commissioned officer, broke it up to try the experiment of its making pipe-clay or whiting for their belts, and on burning it, succeeded beyond their expectations. It is now too late to regret this great loss, but I imagine it must have been a great curiosity, as it is described to have been at least eight inches in diameter.

4 pieces, No 6, (fig 16) Portions of what I am told is the sting of the sting-ray petrified , also a perfect sting (fresh) , and the jaw of a water rat, (fig.15)

29 pieces, No 7 Teeth of deer of various species

9 ——, No 8 Portions of antlers of ditto and other remains of ditto

16 pieces, No 9 Pieces of human bones

5 ——, No 10. Broken jaws of alligators

5 —— No 11 Teeth of garial

21 ——, No 12 Portions of the shell, &c. of the *kachwa*, or mud tortoise.

3 pieces, No. 13 Pieces of teeth of hippopotamus.

2 ——, No 14 Portion of jaw and teeth of goat or deer.

16 ——, No. 15 Petrified wood.

5 ——, No 16 Specimens of pipe kankar.

2 ——, No 17. Petrified perfect fish and shells.

I consider this fossil fish to be the greatest curiosity ever found in the Jamna. (See note)

3 pieces, No 18. Ribs, unknown.

[On the receipt of the first batch of specimens, a correspondence ensued, to ascertain the precise position of the fossils, and their true geological age, the opinions then upheld by their collector have been since more fully developed in his intelligent memoir published in the Journal for May It will be as well, however, to insert here an extract from Mr DEAN's previous letter of the 16th August, 1834]

In answer to your question, whether any specimens (fossil) have been found under the kankar strata of the general Duab alluvium ? Without any hesitation, I answer, not one instance has occurred

It may be questioned, how in the deep bunds of the Jamna, excavated for the purpose of removing the clay banks or shoals, which are so dangerous to the navigation trees, pieces of boats, and some very few instances of bones have been discovered, at depths of from 2 to 10 feet from the upper surface of the clay, from which perhaps a crust of kankar, from one to four feet thick, has first been removed, in a perfect state of petrefaction. This circumstance, on a superficial examination, might be deemed conclusive of these specimens having been actually removed from a level lower than the kankar strata of the general Duáb alluvium, and from under what would appear to be two regular and natural strata, and that there was every probability of their occurring at the same level under neighbouring and other strata, having no connexion with the river, but, Sir, I feel quite satisfied, that at two feet in or under any natural stratum of kankar placed at any level reached by the Jamna, no specimen of animal or vegetable deposit will be found, but I shall be enabled to prove in my observations on the obstructions of the river, that both these apparently natural strata of clay and kankar, are merely deposits, and which being removed, only leave the river, at this place, at a depth it has before attained, but which, from circumstances I believe peculiar to the Jamna, and which I shall hereafter treat on, may, from the rapidity (comparative) of their formation, give an appearance of the work of ages, to deposits, which have been the work of not more than 10 or 12 years.

I am aware, Sir, that I view this subject in a different light from that in which it has hitherto appeared to you I feel convinced, however, that the researches of Indian geologists would be amply rewarded in examining the bed of the Jamna; but I should consider the discovery of fossil remains at a level corresponding with the deepest parts of the river in the sandy soil of the Duáb as the merest possible accident, and I shall be best understood when I say my firm conviction is, that such specimens of fossil animal or vegetable remains, as

are to be met with in the Jamna, owe their existence to some peculiar quality of the water alone, and I do not consider the fossils of the Jamna as at all connected with the natural kankar formation, although at any depth that the artificial or deposit kankar formation is found, they may reasonably be looked for

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IV —*Note on the preceding* *By* JAMES PRINSEP, *Secretary, &c*

More than a year has elapsed since Mr DEAN presented us with a first selection from the fossil bones he had discovered while engaged in blasting the rocks and impediments to navigation in the Jamna, under Major IRVINE, and afterwards Captain SMITH of the Engineers a few months prior to that, in November, 1833, we had been made acquainted with the fact of their occurrence by Captain SMITH, to whose valuable sketches on the stratification of the Duáb alluvium and notes on the position of the fossils, published in the Journal for December, 1833, I ventured to add a few remarks, suggesting the probability of their being subjacent to the kankar, and therefore of an age anterior to the deposition of the great bed of alluvium of the Sub-Himálayan plains, when all this part of the present continent was still buried under the expanse of waters

This opinion has been combated by Serjeant DEAN in the preceding note, as well as in his memoir on the Duáb strata, printed in page 273 of the present volume

The evidence of an eye-witness must be deemed sufficient, and the theory of original deposit with the alluvium must be given up Still the hypothesis advanced in its stead by Mr DEAN, of the fossilizing powers of the Jamna, and the probability of all the present specimens having been mineralized in situ, does not appear adequate to meet the difficulties of the case

It is so far true, that the bones are found in various stages of transformation, some in a crumbling state, the interstices filled with the sand and kankar conglomerate of the river, some lined, in the cells of the bones, with calcareous spar, and chalky earth, while others are, as it may be termed, wholly fossilized, of a dark shining brown colour, ponderous, brittle, of a conchoidal fracture, and retaining little even of the bone-earth itself in their composition. The substance into which the bones are thus converted, is a hydrated oxide of iron The animal matter of the bone is probably first replaced by it, and then the softer portions. The hard enamel of the teeth resists decomposition for a long time, and its whiteness, contrasting with the dark brown of the cavities and encasing jaw

gives these fossils the exact appearance of half picked, dried or roasted bones. A fragment of the polished *osseolite* (for it deserves a mineral appellation) yielded on rough analysis,

Phosphate and carbonate of lime, . ..	17·5
Water, ...	6·0
Red oxide of iron (with alumina ?), ...	76 5
	100

the specific gravity being 4 5.

Were the fossil ingredient every where carbonate of lime, some support might be gained for the theory of the modern conversion of the bones, but while no cause can be assigned for the ferruginous impregnation, nor less for the siliceous, (of which if instances are less frequent here, they are amply supplied from the analogous fossils of Jabalpur,) we shall be justified in seeking and assigning an extraneous origin for the organic remains of the Jamna. Indeed the very specimens upon which the greatest reliance might be urged by the advocates of local formation, those in which the bone is seen entirely imbedded in the hard kankar, furnish adverse evidence, for the fragments imbedded are broken and rounded, and their substance or composition is entirely heterogeneous to the matrix itself

When to these arguments is added the strong fact of some of the fossil animals being such as could not have existed in the dry soil of Upper India, the point is in my opinion decided. Mr. Dean mentions several imbedded specimens, and one whole animal, (the elephant at *Panchkourie**) as situated too high in the bank to be reached by the highest modern floods of the river, to these, therefore, he concedes the greatest antiquity, while of another he allows that the parts must have been washed into the situation in which they now lie, imbedded in the tufaceous conglomerate Of the modern growth of this calcareous tufa there can be no question The incrustations of roots and twigs (forming the pipe kankar of the specimens), and even of fragments of boats or sunken weapons, lost in wrecks on these dangerous shoals, are convincing proofs of it, but there is an essential difference between this formation and the true kankar of the banks

There are two animals in Mr. Dean's list, the camel and the human subject, which have kept up a suspense of judgment as to the nature of his fossil series, from their never having been discovered elsewhere: this difficulty is now removed by the sight of the specimens. Dr. Pearson, and Dr. Evans, are decided, that none of the fragments

* See the description and note in page 271—3.

described as human are such. Two of these are represented in the accompanying plate as figs 20 and 21. The former, supposed to be the head of a human femur, is more likely to be the core of the horn of some large deer, the other is far too uncertain to be identified. The teeth and remains of the camel have been subsequently disavowed by the discoverer himself (see page 278), and are found to be all of the bovine genus

We may then conclude, that the fossils now found in the bed of the Jamna, entangled among the rocky shoals, have been washed thither from some locality in which they were originally imbedded and fossilized From Mr DEAN's account, it is probable, that they were enclosed in the present bank, and have fallen in on its being cut away by the gradual action of the river Should this however not prove to be the case, and search for their home be inquiringly extended to a distance, it is not necessary, as I had at first suggested, to travel back all the way to the ample store-house of fossils in the Sewálik range of the Lower Himálaya, whence such fragile materials could hardly be supposed to arrive with any vestige of form, for Lieut VICARY has presented us with a nearer locality in the banks of the Betwá river*, and Mr BENSON, from personal knowledge, confirms the probability of this spot having been the source of the deposit in the rocks of the Jamna I myself incline to believe that both places have their fossils, and that many more may still be found here and there where natural sections of the alluvium have been formed by rivers, although to expect to fall upon them in the digging of wells would be as chimerical (to use a homely proverb) as searching for a needle in a bundle of hay.

There is in every respect a complete analogy between the fossils of the Jamna and those fortuitously discovered by CRAWFURD under the banks of the Irawadi in Ava. Their preservation is equally owing to their impregnation and conversion into hydrate of iron The words of Professor BUCKLAND would probably apply as well to the one as to the other

"At the bottom of the cliff, the strand was dry, and on it were found specimens of petrified wood and bones, that had probably fallen from the cliff in the course of its decay but no bones were discovered in the cliff itself by Mr CRAWFURD and Dr WALLICH nor were they more fortunate in several places where they dug in search of bones in the adjacent district This district is composed of sand hills that are very sterile, and is intersected by deep ravines among the sand are beds of gravel, often cemented to a breccia by iron or carbonate of lime, and scattered over its surface, at distant and irregular intervals, were found many fragments of bone and mineralized wood, in some instances lying entirely loose

* See Proceedings of the Asiatic Society, 1st April, 1835, page 183.

upon the sand, in others half buried in it, with their upper portions projecting naked, and exposed to the air. They appeared to have been left in this condition, in consequence of the matrix of sand and gravel that once covered them, undergoing daily removal by the agency of winds and rains, and they would speedily have fallen to pieces under this exposure to atmospheric action, had they not been protected by the mineralization they have undergone On examining many of the ravines that intersect this part of the country, and which were at this time dry, the same silicified wood was found projecting from the sand banks, and *ready to drop into the streams*, from the bottom of which, the travellers took many fragments, that had so fallen during the gradual wearing of the bank, and lay rolled and exposed to friction by the passing waters These circumstances shew that the ordinary effect of existing rains and torrents is only to expose and lay bare these organic remains, and wash them out from the matrix to which some other and more powerful agency must have introduced them "

I must now briefly advert to the specimens which I have selected to form the subjects of the annexed plate —The space is far too limited to embrace Mr. DEAN's collection, much less the extensive additions received from Capt E. SMITH, at Allahabad, since I engraved my former plate (Vol II pl 25), of Jamna fossils I have therefore prudently confined myself to *distinguishing specimens*, particularly teeth, which, besides their value as the best types of the animal, are, from their compact size, and hard quality, generally better preserved than ordinary bones.

The teeth, with Dr. PEARSON's assistance I have been able to identify, whereas without a complete Osteological Museum of existing animals (a desideratum we may hope, under his exertions, ere long to possess,)—it would be hazardous and a loss of time to attempt to classify the generality of mere mutilated fragments of bones The great advantage of such a museum over even the best executed plates, was made most obvious in the course of the present examination such of the teeth, as could be placed by the side of the actual teeth of Mr. PEARSON's private cabinet, were at once referred to their correct position in the jaw of the animal to which they belonged

The drawings of all the specimens in the Plate are of half the true lineal dimensions.

Omitting the fragments of elephants' teeth, (Nos 8 and 9,) as being much the same as those already familiar to us from former plates, I have commenced with the most important and curious of the present series, figs. 1 and 2. The former, which was supposed by Mr. DEAN to belong to the genus Tapir, proved to be the last molar but one on the right side upper jaw of the *fossil hippopotamus*, agreeing precisely with the drawing in pl. 1. vol. I fig. 3, of CUVIER's *ossemens fossiles*. This beautiful specimen is, to use the illustrious author's words, "précisement dans l'état de détrition on elle est le plus

facilement reconnoissable par les *trèfles* et les autres linéemens de sa couronne "

No 2, is a young end tooth of the same animal, of which the points have not yet been submitted to the grinding action

I cannot forbear inserting here an extract from the Baron's observations on the habitat of the existing hippopotamus, restricted to the central regions of Africa, from the earliest period of antiquity,—and always a stranger to the continent of India

"Outre le Cap et le Sénégal, on sait par BARBOT at par beaucoup d'autres voyageurs qu'il y en a quantité en Guinée et au Congo BRUCE assure qu'ils sont très nombreux dans le Nil d'Abyssinie, et dans le lac Izana Le VAILLANT en a vue dans toutes les parties de la Cafrerie qu'il a parcourues, ainsi l'Afrique méridionale en est peuplée presque partout Mais n'y en a-t-il que dans cette partie du monde? C'est une ancienne opinion STRABON, (lib xv, p 1012, A, ed Amsterd. 1707,) sur le témoignage de NEARQUE et d'ERATOSTHENES, nie déja qu'il y en ait dans l'Indus, quoiqu'il avoue qu' ONESICRITE l'eut affirmé PAUSANIAS est d'accord avec eux, et bien que PHILOSTRATE et NONNUS aient adopté l'opinion d'ONESICRITE, il est de fait qu'aucun voyageur accrédité n'a rapporté qu'on en trouve sur le continent de l'Inde, même au delá du Gange BUFFON n'a été nullement touché du temoignage de MICHEL BOYN, qui en place à la Chine, c'est donc à peu près sans autorité que LINNÆUS, dans ses éditions x et xii. suppose qu'il y en a aux embouchures des fleuves de l'Asie, ainsi M FAUJAS paraissait bien autorisé à ne point admettre sur ce continent l'existence de l' hippopotame, mais peut être n'aurait il dû étendre sa négation à l'Asie entière · car M MARSDEN, auteur de considération, place l'hippopotame au nombre des animaux de l'île de Sumatra

"Cependant il reste à savoir si M MARSDEN lui même n'a pas été trompé" —*Oss Foss* i 279.

The animal, MARSDEN alluded to, was most probably the tapir, for Messrs DIARD and DUVAUCEL could find no trace of the hippopotamus either in Java or Sumatra

Fig. 3, is the third molar right upper jaw of a very large ox, or buffalo, though the latter name, a stranger to fossil geology, should rather wait further confirmation* The specimen corresponds precisely with the similar tooth of the largest buffalo in the museum.

Fig. 4, I at first took for the *little fossil hippopotamus* of CUVIER, vol. I. p. 334, but on placing it side by side with the upper jaw of a large hog shewn me by Dr. PEARSON, in the Society's museum, it

* I have just received a note from Lieut. BAKER, correcting, on this head, my notice of the animals in his and Lt. DURAND'S *Dadupur Museum*, in the Proceedings of the Asiatic Society, for July last, (page 409.) The buffalo, he says, has not yet been found in the *Sewálik* hills, although the ox is very common there. I possess a note and sketch, however, from Serjeant DAWE of a supposed buffalo's head, which is now on its way to our museum.

agreed with the latter in every particular, save that it was one-fifth larger.

Fig 5, is the hindmost molar of the ox, a smaller animal than the last.

Figs 6 and 8, are too views of the hindmost molar of one of the deer family. It corresponds precisely with a large antelope in the museum, and the Cuvierian characteristics of the teeth of the camel, antelope, goat, and sheep, which contradistinguish them from the other ruminants, namely, "qu'ils ont la face externe de leurs molaires inférieures simplement divisée en autant de piliers demi-cylindriques qu'elles out chacune de doubles croissans," are particularly marked in it. The antelope is one of the animals not hitherto known in a fossil state, therefore it will be improper to pronounce upon a single tooth, but the goat and sheep are equally so, and the specimen is too large for them, and too small for the camel.

Fig 7, seems to be the interior spire of the tooth of a ruminant, of which the exterior has been destroyed.

Fig 9, is the second milch tooth, in germ, of the ox or deer; and fig. 10, one of the middle incisors of the latter animal.

Fig. 11, is the second or third molar tooth of the lower jaw of a horse It somewhat exceeds in size the corresponding tooth of the celebrated racing mare Eclipse, of 15 hands high, whose skull is in Dr. PEARSON's possession.

Fig. 12, is a fragment of the jaw of a small deer, the teeth are all lost, but one, which is ground down by age, until all the marks are effaced.

Fig 13, is an incisor of some small ruminant.

Fig. 14, is rightly attributed by Mr DEAN to the water rat. The delineations on the crown differ slightly from the drawings in CUVIER's synoptical plate of the "Rongeurs," but they agree with the existing species.

Fig. 15, are Saurian teeth, probably of the *garial* or L. Gangetica. Several fragments of the jaw of the alligator appear in the collection, and many of the vertebræ of a dark-brown shining aspect, well preserved. One of these is represented in fig. 21, (upside down,) to shew the appearance of the processes

Fig. 16, is correctly described by Mr DEAN as the fossil sting of a ray fish, coinciding precisely with the recent specimen sent by him for comparison (of which a portion is delineated under the fossil, fig 17).

Fig. 18. Several pointed calcareous spiracles, without organic structure, but semi-crystallized, appear to resemble the pseudostalactites thus described in Professor BUCKLAND's memoir on the Ava fossils :—

"There are other calcareous concretions that contain no kind of organic nucleus, but are composed of precisely the same materials as those which are found around the bones, and present many of the irregular shapes of the tuberous roots of vegetables, some of them also have the elongated *conical form of slender stalactites*, or clustered icicles—a form not unfrequently produced in beds of loose calcareous sand, by the constant descent of water along the same small cavity or crevice, to which a root or worm hole may have given the first beginning." p 383 Mr DEAN's collection has many examples of encrusted twigs and roots

Fig 19, the specimen which so much puzzled the gentlemen who examined the collection while in Mr D's possession is in fact one of the most curious of the whole, nor is yet certain to what animal it should be assigned. Mr. PEARSON, on seeing it, pointed out its great resemblance to the cervical vertebra of the young camelopardalis, which died in Calcutta, a few years since, and of which he preserved the skeleton. Lieut. BAKER has favored me with a drawing of a similar bone, which he states to belong to a fossil elk in Serjeant DAWE's collection (See Pl. XLIV and the description in page 507.) There are others of much larger dimensions, he says, in the Dadupur museum, the contents of which will form the subject of a plate in the ensuing number of the Journal.

The specimen set down as a small petrified fish, which it much resembles in outward form, is, on making a longitudinal section, found to be formed of oval concentric concretions, similar to those of the country almond, possibly they are the convolutions of some shell, but certainly not a fish.

VI.—*On the Fossil Elk of the Himálaya By Lieut.* W. E. BAKER, *Engineers.*

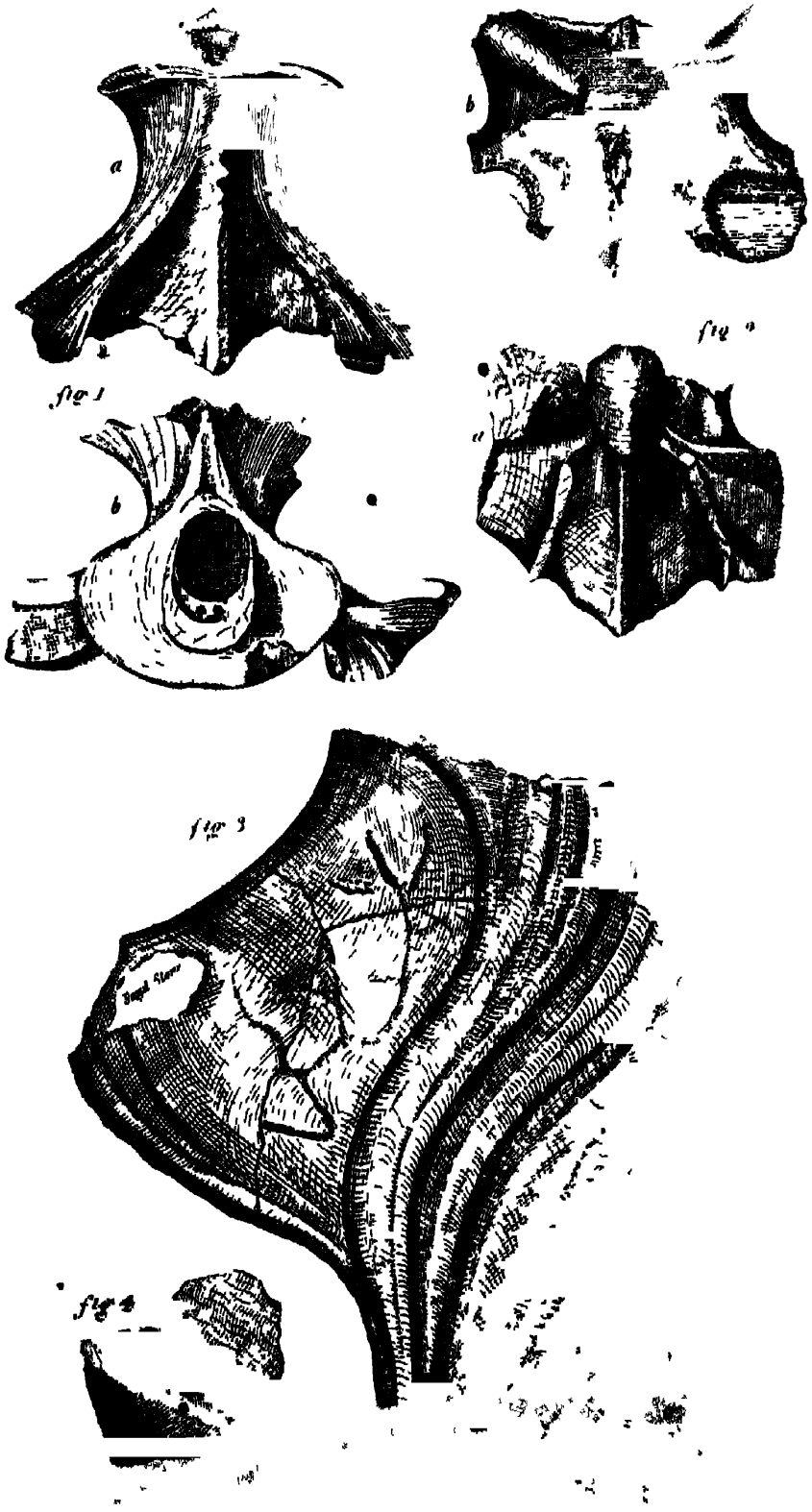
[In a note to the Editor.]

The fossils represented in the accompanying plate, XLIV., are stated by the natives who collected them to have been found in the Haripur pass of the Sub-Himálayan range The original specimens are in the possession of Mr DAWE of the Canal Department.

The fragment of antler (fig. 3,) appears undoubtedly to have belonged to a species of elk, and it is possible, that the two vertebræ (figs. 1 and 2) may have formed a part of the same animal as they are stated to have been brought from the same locality, and this statement is corroborated by the similarity of colour and general appearance of the fossils. One of the vertebræ (fig. 2) was actually

Fossils from the bed of the Jumna River

Fossil Elk from the Sub-Himalayas
1/3th Nat Size



Scale of Inches
1 2 3 4 5 6 7 8 9 10 11 12

adhering to the antler at the time when I undertook to clear away the sandstone with which they were all partially covered up.

The fragment (fig 4) consisting of one of the occipital condyles of a large ruminant, was obtained afterwards from the same person who brought the others, and who stated that he had found it in the same spot. I purpose availing myself of the first opportunity of visiting this pass, where, from the admirable state of preservation of these specimens, I hope to meet with others equally perfect.

The axis (fig 1) must have belonged to a very large ruminant, being in linear dimension about double the size of the corresponding bone of the common bullock of Hindustán. But supposing it to have belonged to our elk, it would appear that this individual at least did not in size equal the elk, of which the remains have been found in Europe.

Besides the specimens represented in the plate, there are in the Dadupur collection, many fragments of bones, more or less perfect, of gigantic ruminants. amongst others, cervical vertebræ, far exceeding in size that represented in fig. 2.

Another year will, I hope, give us a more perfect acquaintance with the former possessors of these huge fragments, in the mean time, it may be worth while to note the discovery of the first undoubted remains of the elk, as I am not aware that this animal has been hitherto found in a fossil state in India.

Dadupur, June 9th, 1835.

VII.—*Note on the Vegetable Impressions in Agates. By Mr.* J. STEPHENSON.

[In a letter to the Editor]

A few of the scientific gentlemen of Calcutta, who have seen specimens of my collection of agates from the Sone river, having imbedded the organic remains of plants, have doubted the existence of such remains, asserting (agreeable to the old notion), that the appearances are ceased by *metallic oxides, merely assuming arborescent forms,* I am well aware, that long cherished opinions are difficult to eradicate, and most people are tenacious of parting with what they have hugged as truths for half a century. I well remember when Sir HUMPHREY DAVY explained LAVOISIER's beautiful theory of combustion, that a good many of my contemporaries would not be convinced, though demonstration stared them in the face, and it was only after years of argument, that they were compelled, at last, to embrace the new and

splendid discovery My object in this communication is, to convince those who doubt the existence of organic remains in *agates* from the Sone river, or elsewhere. I therefore beg leave to refer them to the following passages in Dr. URE's Dictionary of Chemistry, published about fifteen years ago, which, in my humble opinion, establishes my point.

"These curious appearances (meaning the organic remains of plants) were ascribed to deposites of iron or manganese, but more lately they have been thought to arise from mineralized plants of the cryptogamous class." And again, "Dr McCULLOCH has recently detected what DAUBENTON merely conjectured, in *mocha stone* and *moss agates*, aquatic confervæ, unaltered both in colour and form, and also coated with iron oxide. Mosses and lichens have also been observed along with chlorite, in vegetations. An onyx agate, set in a ring, belonging to the Earl of Powis, contains the chrysalis of a moth" I am also of opinion, that the arborescent appearance termed *Dendrites* in our magnesian limestone, and flag sand-stone, are the remains of mosses and lichens I have several times tested the substance, but could only detect *carbon*, which certainly indicates their vegetable origin. I doubt not when they are effectually examined, but they will turn out to be the remains of vegetation"

The beautiful specimens from the sandstone of *Chunar* afford an excellent opportunity to those who may wish to set the matter at rest, and I must here remark, that you, as Secretary of the Asiatic Society of Calcutta, might easily accomplish the desired examination.

I also have another reason for troubling you with this communication. If the appearances in the agates *are not the remains of plants*, I have in that case asserted a *falsehood* in my advertisement, published in No. 39 of your Journal However, with such authorities as the above mentioned, I need not fear again to assert, that the appearances in my agates are the real organic remains of aqueous plants, in a state of preservation not exceeded by any previous discovery, and altogether (as a collection), *unique*

Dr URE's Geology affords further proofs to strengthen my original opinion, that the appearances in my agates are truly the remains of plants, the passage runs thus:

"If any further evidence of the aqueous origin of chalcedonies and agates were wanted, it has been afforded by Dr McCULLOCH in an ingenious paper on the vegetable remains preserved in these siliceous minerals, published in the 3rd volume of the Transactions of the Geological Society. It is there shown that the mode in which the delicate vegetables thus become involved is perfectly simple, and consistent with the production of chalcedony But we must distinguish their real causes, from pseudo specimens of black arborizations, produced by the oxides of manganese and iron, or by chlorite

"When real confervæ are present, the vegetable form is so perfectly preserved that the plant seems to float freely as if in its liquid element. Even the green often retains its lively hue

"Some of the large species of plants have been determined DAUBENTON describes the *Lichen rangiferinus* and *digitatus*, plants possessed of forms which no minerals could imitate"

This account is accompanied with an engraving of a plant (a hypnum) occurring in Chalcedony, which agrees with a few in my collection, but a great many others, I dare say, are undescribed plants in a fossil state, and worthy the notice of the scientific world

It cannot be otherwise than interesting to the Geologists of Europe, as well as to those in India, to have a description of the various species of fossil plants occurring in the Sone agates, with engravings of a few of the largest ones, and I will endeavour shortly to supply such a desideratum through your Journal as the fittest for such a purpose

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VIII —*Chemical Analyses By* JAS PRINSEP, *Sec &c*

Under this head we propose to insert the examinations of various substances sent to us by friends, of which they will be better able to look for the results here than in detached miscellaneous notices —ED

1 —*Saltness of the Red Sea*

The *Hugh Lindsay*, Steamer, having given currency to the report that the Red Sea contained more salt than the ocean, and that in consequence she had been obliged to blow off much more frequently while in that part of her voyage, Lieutenant BURNES, on his return to India on board of her, took the precaution of filling two bottles, one with the water of the Red Sea, the other with that of the Arabian Sea, which he was so kind as to send to me under charge of Lieutenant FRASER. (See Proc Asiatic Society, page 410)

After being allowed to stand for some hours side by side, to acquire the same temperature, their specific gravity was taken in the most accurate manner

No. 1, Arabian Sea water, spec grav	1 0254	at 86° 1
2, Red Sea water, ..	1 0258	at 86° 2

The difference is certainly in favor of the latter, but it is much too small to cause any sensible effect in the blowing off

Equal portions of the two were then analysed by the usual chemical tests, although the hydrometer result would have been quite sufficient to found a judgment upon. It was thought that perhaps the lime might be in excess in the one case, and thus cause a quicker incrustation in the boilers, but both waters on evaporation began to be turbid at the same time. The analysis was chiefly directed to the determination of the sulphuric acid and lime, the rest being performed in a rapid manner. the results were as follows on one cubic inch of each:

	Arabian Sea	*Red Sea.*
Sulphuric acid, thrown down with barytes,	1 82 grs	1 80
Lime, precipitated by oxalate of ammonia,	0 70	0 82
1000 grs gave, with nitrate of silver, chloride of silver, . .	80 00	81 95
= chloride of sodium, or common salt,	32 8	33 5

Although, however, the sea in mid channel may not differ materially from the broad ocean in its contents, it may be possible that in insulated positions near shore, under a fierce sun, concentration may proceed to a considerable extent—this is the only way in which I can account for the very different result published in the London Literary Gazette, on the authority of Dr URE's analyses quoted in Mr. WILKINSON's work on Egypt

The following is the paragraph alluded to

" During my stay on the coast of the Red Sea, I had occasion to observe the remarkable saltness of its water, and succeeded in ascertaining that it contained much more saline matter than the ocean I have since been favoured by Dr URE with the analysis of some water brought by me from Berenice, from which it results that the specific gravity is 1 035 , that 1000 grains of water contain 43 of saline matter, of which about four grains are muriate of lime, with a little muriate of magnesia, and the remainder muriate of soda, with a little sulphate of magnesia. The specific gravity of water of the open ocean in the same latitude is only 1 028, and contains not more than 36 grains of saline matter in a similar quantity "

To which the author attaches a note, explaining, that " after the vernal equinox, the Red Sea is lower in winter , but the prevalence of the south wind after the month of September causes a considerable rise of its level "

The difference in the two cases is not more than may reasonably be explained in the above manner The hydrometer is in all cases the safest test, and it is a pity that it had not been resorted to in the steam navigation of the Mediterranean, which has been the source of such contradictory statements

2 - *Native Carbonate of Magnesia from South India.*

In my analysis of the Nerbudda dolomite, published in the *Gleanings in Science*, vol I. p 267, I expressed a desire to obtain some of this mineral, stated by Dr THOMSON to form " whole rocks in Hindustan, and to contain much less carbonic acid than it ought," though he was curious to know whether the interior portions of the mountain might not have their full proportion

My wish has at length been gratified by Dr MALCOLMSON, Sec Med Bd. at Madras, among whose specimens, recently presented to

the Society, are several lumps of this curious mineral. Dr. M writes·

"The native carbonate of magnesia from Salem has again attracted attention I at first supposed it to be a magnesite, from the great difficulty of dissolving it, but subsequent observation proved it to contain no silex Its composition would seem to be, carbonic acid 47 5, water 4 0*, magnesia 48 5. As it is likely to become an article of commerce, and the statements regarding it are contradictory, I send some for your re examination It occurs in thin veins (from an inch to a foot), and also, (it is said,) in beds"

As the atomic weight of magnesia differs materially in different chemical works, I was anxious to make use of this mineral to set the matter at rest, and decide whether BERZELIUS, THOMSON, or BRANDE was most to be trusted

Three careful experiments proved, that the water contained was 0 8 per cent, while the slight adulteration of silica left, on dissolving 100 grs, was only 0 3, traces of alumina and oxide of iron were visible in the form of a delicate brown gelatinous film on adding ammonia to the solution, but none of lime, even after adding sulphuric or oxalic acid, evaporating to dryness, and redissolving in distilled water. The solid impurities, therefore, being set against the gaseous, as nearly in the proportions of the magnesian salt itself, it is evident that simple calcination of the solid mineral will give a very exact view of its constituent proportions

Ten specimens of 100 grs each, treated in this manner, returned from the fire, weighing respectively, 49 67, 48 26, 48 20, 48 40, 48 40, 48 38, 48 39, 48 33, 48 37, and 48 38 The first of these was in the solid form, and therefore may not have been thoroughly calcined the average of the rest gives,

Magnesia,	48 34 by BERZELIUS	48 31†
Carbonic acid,	51 66	51 69
	100	100

or almost precisely the composition according to this accurate chemist—which it may be remembered was the only one which would agree with my analysis of the *Jabalpur* dolomite, a definite crystallized compound of one atom of carbonate of lime and one of carbonate of magnesia.

To prove that no influential quantity of carbonic acid was retained, two of the specimens were dissolved in dilute nitric acid, in a closed glass tube—the gas extricated was less than the 50th of a cubic inch.

* Dr MALCOLMSON afterwards corrects this error A part of the carbonic acid was driven off with the water.

† By Dr THOMSON, *M.* 46 2 *C A* 53 8, by BRANDE *M.* 47·2; *C. A.* 52·8.

The mineral was found to differ considerably in weight from the statements of THOMSON and PHILLIPS—the specific gravity of two specimens being 2 970, and 2 897, at the temperature of 85° A good deal of air was given off on its first immersion into water, and it adhered to the tongue

Another point to be ascertained, from this mineral, was, whether the circumstance I noticed on the occasion alluded to, would hold true, viz that calcined magnesia would not become a hydrate, like lime, on slaking, and that this earth might thus be recognized in mixtures

Three of the calcined specimens were treated with water, which disengaged considerable heat, and then exposed in a receiver, over concentrated sulphuric acid, to be ridden of hygrometric moisture After 30 hours, they weighed respectively 60 45, 58 7, 60 9 grs, shewing an average excess of 10 0, which is about half an atom of water (9 8) This result is so unexpected that it requires further examination, which I hope to be able to give hereafter.

3 —*Tin from Malacca*

Cast blocks of the metal of the principal mines, as prepared for sale, were transmitted by Ensign NEWBOLD With reference to my observation in the 3rd vol. of the GLEANINGS, I was contented to test their purity by the specific gravity, which was as follows —pure tin, at the same temperature, 84° 5, being about 7 290

No 1,	from Naning	7 317
No 2,	,, Srimenanti (new mine)	7 262
No 3,	,, Jompole	7 287
No 4,	,, Sungie Oojong	7 223
No 5,	,, Lúkút in Salangore	7 349
No 6,	,, Rumbowe	7 256
No 7,	,, Jelaboo	7 314
No 8,	,, Perak	7 299

Two specimens of the ore also accompanied —

No 1, from Lúkút, a fine grained black oxide of tin, had a specific gravity of 6 74, and yielded a produce of 70 per cent. of very good metal, on simple fusion, with black flux

No 2, from Srimenanti, was in much larger grains or lumps It weighed, however, only 6 64, and yielded only 52½ (?) per cent of metal—giving off some sulphur in the fire It is therefore inferior to the former, but probably not to the extent stated in the above crude and single reduction

4 —*American Self-generating Gas Lamp.*

Mr LONGUEVILLE CLARKE has one of these curious and ingenious lamps, which are something on the principle of the little floating

candlesticks without oil, invented, I believe, by WOOLASTON A metal stem passes down into the liquid, and, once heated, is afterwards kept warm by the burning vapour, which it causes to rise and issue from the gas-jets encircling the stem Some mystery is made about the liquid, but its analysis proves to be very simple

Specific gravity, 760 at 32°, easily volatile, with a smell of turpentine 100 grs allowed to evaporate spontaneously, left barely a trace of solid matter—resinous 100 parts, mixed with water in a measured tube, turned white, and 15 parts of pure colourless turpentine finally settled at the top of the watery emulsion In fact, a mixture of 85 alcohol, and 15 turpentine was found to possess precisely the qualities of the liquid, burning with a clear flame, and without smell

It is necessary to use the oil of, and not the rectified, turpentine, which latter is well known not to be soluble in alcohol

5 —Native Remedy for the Spleen.

The late Dr TWINING gave me some pills used by the natives as a cure for the spleen They proved to contain nothing but sulphate of copper, mixed up with meal and mucilage

6 —Three bottles of Water from Hot Springs in Assam

Captain JENKINS is anxious for the result of their examination, but I really am uncertain of two, which arrived in a dirty and odorous state—one, No 3, containing an abundant putrid yellow scum, which appeared like a compound of bitumen and sulphuretted hydrogen, but was not further examined No 1, was a clear sweet water, having a specific gravity, 9964 at 91°, and containing only common salt.

7 —Mineral Water from Ava

CAPTAIN MACLEOD favoured me with a bottle of water from the lake near the Khyendwen river, whence a mineral salt is obtained It had a spec grav. of 9985 at 88°, and was consequently nearly pure. But a second bottle, filled from a well only three feet from the same lake, weighed 1 0006 at 88°, and yielded a copious precipitate to muriate of barytes, and nitrate of silver, shewing it to contain a mixture of sulphates and muriates, which are extracted by the people of the neighbourhood

8 —Hot Springs in the Mahadeo hills, (see Vol III p 390)

The two bottles sent me by Dr SPILSBURY were so nearly pure, that it was not worth while to examine them further than by the hydrometer.

9 —Minerals from Moulmien

The following are, I believe, the correct names of the specimens obligingly sent by Lieut FOLEY, in June Nos 1, 4, 16, iron pyrites, 2, galena, 3, sulphuret of antimony; 8, 9, hydrated oxide of iron, hæmatitic, 10, fibrous gypsum, 11, magnetic oxide of iron, 12, 14, 17, granite with pseudo-metallic mica, 13, black oxide of tin

10.—*Sulphuret of Molybdenum*

This was put into my hands by a mercantile house in Calcutta, without however noticing whence it came

It resembled graphite or plumbago so exactly in its qualities of drawing traces on paper, of being unaltered in the fire, and very gradually disappearing, that I should have been contented with these appearances, had not its specific gravity, 4 64 to 4 5, been so much higher than that of graphite, (1 4) When heated also, white fumes, devoid of smell, or slightly sulphurous, were perceived at the moment of withdrawal from the fire

It was digested with disengagement of red fumes in nitric acid, leaving a white insoluble precipitate in the filter, weighing 74 4 per cent. The liquid gave immediate evidence of sulphuric acid, that had been formed from the sulphur present The white mass acted in all respects like molybdic acid, and was known to be so from its peculiar property of turning instantly blue on contact with metallic iron, lead, copper, or silver a fact, I believe, not hitherto noticed water is required to produce this effect Heated red with carbonate of soda, the metal was reduced with effervescence

I am not aware that this singular mineral is turned to any profit, but it is desirable to ascertain where it has been discovered The high specific gravity of the Ceylon graphite, 2 37, leads me to imagine that I may have mistaken that mineral also, and invites further inquiry It may be remembered*, that in an English cabinet of minerals, a metallic ore was also found substituted for the true Borrowdale plumbago

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IX —*Horary Meteorological Register for Calcutta By* JAS PRINSEP, *Sec &c*

The 21st September having been appointed one of the days for the combined series of horary observations, by the Meteorological Association, I could not allow it to pass without an attempt to fulfil the prescribed terms, even at the sacrifice of a night's rest

The weather was not very favorable, although such as might be expected near the equinox the barometer was gradually falling, indicative of blowing weather, which in fact followed a few days afterwards The occasional violent showers checked the course of the thermometer and hygrometer, and the minimum temperature noted, was that of the rain, rather than that of radiation to the sky. As a different barometer was necessarily used during the night, care was taken to continue its readings during the day, to obtain an accurate comparison with the standard instrument at the Assay Office The difference— 017, has been added, to bring the whole to terms of the

* See Analysis of Graphite, GLEANINGS, vol III p 180.

standard, which I have reason to believe does not differ more than ·010 (in defect) from the Royal Society's barometer

The thermometers were all standards from NEWMAN's, agreeing very closely together

The diurnal tides for the two days are respectively 0 140 and 0 116, from the former of which must be deducted the gradual decrease of the pressure for 6 hours, $\overline{732 - 663} - 4 = 017$, leaving 0 123, and $\overline{116 + 123} - 2 = 0\ 120$ is the mean, which is rather above the usual amount of tide for the month of September The nocturnal tide from $10\frac{1}{2}$ P M to $4\frac{1}{2}$ A M is 700— 607 (with allowance for the half hours) = 083 The hours of maxima and minima correspond with those used in the registers of the Journal, and suggest the expediency of an alteration in those fixed for observation by Sir JOHN HERSCHEL, (see page 358)

Horary observations of the Barometer, Thermometer, and Hygrometer, made at Calcutta, from 6 A M *of the* 21st *to* 6 P M *of the* 22nd *September*, 1835

Hour 21st	Barometer at 32°	Thermometer in the Air	Under sky	Wet bulb therm	wet bulb depression	Hair hygrometer	Rain	Wind	Weather
A M 6	29 678	78 0	75 2	75 8	2 2			E	Scud, cirri above
7	699	79 4		76 2	3 2			e	do , increasing
8	715	80 0		76 5	3 5			o	cumuli, clear above.
9	725	81 8	80 0	76 8	5 0			e	do
10	732	85 0	85 2	78 1	6 9			e	cumuli.
11	702	84 7	97 0	77 7	7 0	95		E	do , fine
noon	684	85 6	100 0	78 4	7 2	94		E	do
1	656	86 0	96 2	78 3	7 7	93		e	overcast
2	621	79 2	91,0	78 6	0 6	100		e	hard shower, clear.
3	592	83 1	102 4	78 8	4 3	97		e	fair
4	592	82 2	88 2	78 6	3 6	97		e	cloudy
5	595	82 3	85 7	78 7	3 6	97		e	do
6	605	83 7	(rain)	78 6	5 1			e	cumuli, rain $6\frac{1}{2}$ p m
7	646	78 5	74 0	76 8	1 7			o	rain
8	657	79 7		77 5	2 2			e	overcast
9	688	80 1		77 4	2 7			E	do , clearing
10	696	79 5	76 8	76 5	3 0			e	clear night
11	699	79 1		76 4	2 7		0 40	e	do
midnight	682	78 4		76 2	2 2			e	do
22nd 1	658	77 8		76 4	1 4			e	do
2	653	77 6		76 4	1 2			e	cloudy.
3	636	77 7		76 5	1 2			e	overcast.
4	618	77 5	75 7	76 3	1 2			e	do
5	621	77 7		76 8	1 1			E	cum stratus
6	643	77 7	76 8	76 4	1 3			E	do , wet
7	646	78 3		76 5	1 8			E	do
8	654	79 1		76 6	2 5			E	do, clearing
9	662	80 3		77 1	3 2			E	scud
10	663	83 0		78 1	4 9			E	fine
11	647	83 9		79 6	4 2	96		E	cumuli
noon	620	83 4	93 0	77 4	6 0	94		E	do
1	595	80 4	83 2	77 6	2 8	99		E.	rain, dull.
2	568	81 5	88 4	77 5	4 0	98		E	cumuli
3	544	81 5	85 8	77 5	4 0	98		E	overcast.
4	544	80 4	79 6	76 6	3 8	99		e	hard rain
5	547	79 2	79 0	77 2	2 0	99		e	do
6	.574	×77.6		75 7	1 9		0 60	E.	clearing.
Mean 1st 24hours,	29 6605	80 61		77 26	3 35		0 40	e byn	showery.
Mean 2d 24hours,	29.6317	79.58		76.96	2.62		0 60	ebys	ditto.

X —*Proceedings of the Asiatic Society*

Wednesday Evening, the 7th October, 1835

The Hon'ble Sir EDWARD RYAN, President, in the chair

Messrs J. BELL, G LOCH, C S, J M McLEOD, Mad C S, and Lieuts. H M DURAND and W E BAKER, Engineers, proposed at the last Meeting, were ballotted for, and unanimously elected Members of the Society

Mr J STEPHENSON, proposed at the last meeting, was, upon the favourable report of the Committee of Papers, elected an Associate Member

Read a letter from G A BUSHBY, Esq, Secretary to Government, intimating, that the Society's Memorial would be dispatched by an early opportunity

Read a letter from J C C SUTHERLAND, Esq, Secy Genl Com Pub. Instr, forwarding the list of Oriental Books, transferable to the Society.

Read a letter from M A COURT, acknowledging his election as an Honorary Member.

Read a letter from M E BURNOUF, Secretary to the Asiatic Society of Paris, acknowledging the receipt of Volume XVIII. of the Asiatic Researches

Read letters from J FORSHALL, Esq Secretary to the British Museum, and H HARKNESS, Secretary to the Royal Asiatic Society of Great Britain and Ireland, acknowledging the receipt of copies of M CSOMA DE KOROS's Tibetan and English Dictionary

Read a letter from Professor H. H WILSON, forwarding statements of the Society's accounts with Messrs PARBURY and Co, made up to the end of December last, exhibiting a balance of £23 11*s* 1*d* in favor of the Society.

Library

Read a letter from Counsellor VON HAMMER, forwarding for presentation the undermentioned books published by himself

History of the Ottoman Empire, vol 10th

Jahrbucher der Literature, vols 65, 66, 67, and 68

Uber die Landerverwaltung unter dem Chalifate.

The following Books were also presented

Statuti dell' Accademia delle Scienze e Belle Lettere—*by the Academy of Palermo*

De redigendis ad unicam seriem comparabilem meteorologicis ubique factis observationibus Conventio Proposita et Tabulæ Supputatæ ab Equite Nicolao Cacciatore—*by the Author*

CLOUGH's Pali Grammar, with a copious Vocabulary, 1 vol, and a Dictionary English and Singalese, 2 vols —*by the Author*

Journal of the Royal Asiatic Society, No 3—*by the Society*

Moor's Oriental Fragments—*by the Author*

Proceedings of the Geological Society of London, No 37—*by the Society.*

The Indian Journal of Medical Science, No 22—*by the Editor*

ROODRA VAN EYSINGA's Dutch and Malay Dictionary, 2 vols and ANGIEBEEK's Malay Grammar, 1 vol —*by Dr Vos*

Hikaitismyateem, 1 vol Malay Language and Character—*by ditto*

Meteorological Register for August, 1835—*by the Surveyor General*

A copy of the Tibetan, Mongol, and Chinese Vocabulary, alluded to in M KLAPROTH's notice sur le Tibet, procured through Mr. INGLIS of Canton, and presented by the Secretary

The following Books received from the Book-sellers ·

Illustrations of the Botany and other branches of the Natural History of the Himalayan mountains, by J F ROYLE, Esq F L. S. and G. S. M. R A S.

SOWERBY's Fossil Conchology.

LARDNER's Cabinet Cyclopedia, Germanic Empire, vol. 2nd.

——————————, Ireland, vol. 1st.

Museum

A variety of bows, arrows, and other weapons from Chota Nagpore, Singhbhúm, and the Jungle Mehals, were presented by Lieut. G. W. HAMILTON, 34th Regt. N I

Prepared skeleton of the hood of a Cobra de Capello Snake, presented by Colonel L. R STACY

Literary.

Read a letter from Lieut. G. W HAMILTON, 34th Regt N. I., forwarding two manuscript volumes of a poetical translation of part of the Sháh Námeh of Firdausí, by the late FRANCIS GOLD, Esq, Assistant Surgeon, 34th Regt N. I

Physical

A memoir, with drawings, of the *Sivatherium Giganteum*, a new fossil ruminant genus from the valley of the *Markanda*, by Dr FALCONER and Captain P J CAUTLEY, was read.

Also, a notice of the fossil Crocodile of the *Sewalik* Hills, by Captain CAUTLEY

Minerals from the neighbourhood of Kabul were forwarded by Syed KERA'MAT ALI, for presentation, also a large supply of flower and fruit seeds and medicinal drugs, from the same place, and a further collection of Bactrian coins for inspection.

The seeds were directed to be transmitted to the H C. Botanical Garden, with a request that they might be examined, and bestowed to the best advantage. The medical drugs, in like manner, to be transferred to the Medical Society.

The collection of Coins, consisting of about 750 pieces, 11 gold, 72 silver, and the rest copper, possesses one silver EUTHYDEMUS, one ditto ANTILAKIDES, (new,) two ditto MENANDERS, one ditto LYSIUS, (new,) a fine gold KADPHISES. The remainder are of the Indo-Scythic, Sassanian, and Khálif dynasties

The minerals collected by the praiseworthy and intelligent Syed are some from the neighbourhood of Kabul, and others from Demavend, &c in Persia. Among others, a fine green talcose sectile steatite or agalmatolite from Kabul, native sulphur, gypsum, specular iron in large laminæ, &c

A letter from Captain CONOLLY, accompanying the despatch, states that KERA'MAT ALI has collected a large store of statistical information during his stay at Kábul while agent for the British Government, which it is his intention to put together for publication in Persian

At the conclusion of the business of the evening, the Secretary exhibited a very powerful electro-magnet, lately received from London, which produced a brilliant spark, decomposed water freely, imparted a considerable galvanic shock to the human body, and lighted a spirit lamp

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XI —*Extracts from Correspondence*

1 —*Semimenstrual Inequality of the Tides.*

[We hasten to publish the following letter from the Rev W. WHEWELL, of Cambridge, in correction of a quotation from the learned Professor's Essay on Cotidal Lines in our editorial notice of Mr SINCLAIR's tables of the Calcutta tides, in the third volume of the Journal, p. 408. We regret that the period fixed for the contemporaneous observations on the shores of England should have passed but we once more repeat a request to our friends on the coast to furnish the information now called for —ED]

"In the number of your Journal for August, 1833, is given a table of the times of high water at the principal places between Calcutta and Point Palmiras, by Mr. P. A. SINCLAIR. an addition to our previous materials for a map of

Cotidal Lines which I saw with much pleasure But I am desirous of removing a misapprehension which I perceive in the remarks accompanying this table Mr SINCLAIR has given the time of high water for every day of the moon's age, at the places contained in his table, calculated on the supposition of a daily retardation of the tide, to the amount of 48 minutes and in the remarks a rule is quoted from my paper for the correction of the time so given But the rule quoted is erroneous for the purpose there stated The rule which should have been given is the following nearly.

Correction to be applied to the time of high water calculated by supposing it to be always at the same interval after the moon's transit as it is on the days of new and full moon

												hours.
Time of moon's preceding transit,	0	1	2	3	4	5	6	7	8	9	10	11
Correction, minutes,	0	−16	−31	−46	−61	−72	−75	−65	−34	0	+13	+11

The fact is, that the correction quoted from my paper belongs theoretically to the "correct establishment," or mean of all the intervals of moon's transit and tide, not to the "vulgar establishment" or interval of moon's travel and tide on the day of new and full moon, which is the establishment taken by Mr SINCLAIR

The correction which I have given above is probably not exact for India, for it is taken from the London Tide Observations, and it would be extremely desirable, as you have observed in your Journal, to verify or correct it by observations at some stations in the Indian seas, made daily for a sufficient length of time I may add, that the above correction is what has been called the *semi-menstrual inequality*, and does not arise from the inequality of the moon's daily motion, but from the varying angular distance of the moon from the sun, in consequence of which the solar tide sometimes coincides with the lunar, and at other times is separated from it by a large angle

I am very glad to find you expressing your hopes that you will be furnished by your correspondents with tide observations from an extensive range of places in India I would observe, that for the purposes of science, the daily observations themselves are much more valuable than the "establishment," or any other inference collected from them

In conclusion, I would beg particularly to state, that directions have been given for tide observations on the whole coast of England from the 9th to the 22nd of June in this year that I have strong hopes that these observations will also take place on the shores of other states of Europe and America, at the same time, and that it would be very interesting and useful to have contemporary observations made on the shores of India at as many places as possible"

March 21, 1835.

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2 —*Mr* TAYLOR'S *mode of determining the Errors of Division in Astronomical Instruments.*

[Extract of a letter from Sir JOHN HERSCHEL, dated C G H April 20, 1835.]

Feldhausen, near Wanbey, C. G H

"The Journal for August, 1834, contains Mr. TAYLOR'S application of the collimating principle to the examination of the mural circle at Madras It is somewhat singular, that not long before I had suggested to Mr MACLEAN, the Astronomer Royal here, and had also written to Professor AIRY at Cambridge,

suggesting its application to the circles in the British Observatories, as the only fundamental mode of enquiry into their errors, a process which coincides in almost every particular with that adopted by Mr TAYLOR, and which amounts in fact to an aerial *re-division* of the circle in situ

"I do not mention this as in any degree wishing to interfere with Mr TAYLOR's just claim to independence and priority of invention, but as I consider the method in question to be one of great importance, and likely to supersede every other method of examination, I wish to obviate any misconception which may arise from the appearance in England in any of the journals, &c of this method, as proposed by myself, without mention made of Mr TAYLOR's name---what he had done being then entirely unknown to myself, and my own thoughts having been turned upon the subject in the course of a severe examination to which Mr MACLEAN has been subjecting the Cape circle, and respecting which he did me the honor to consult me"

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3 —*On a simple mode of Correcting the Index Error in taking observations for latitude By Lieut* W P JACOB, *Bombay Engineers*

[In a letter to the Secretary As Soc]

I send you the results of a few observations, made lately at Karanja and Bombay, in illustration of a very simple method by which the errors of an altitude instrument, when employed in finding the latitude of a place, may be rendered insensible It consists in observing pairs of stars which have nearly the same meridian altitude, the one N and the other S The errors of both in altitude will then be the same, but with respect to the pole they will be in opposite directions, so that the latitude resulting from the mean of the two will be free, not only from the errors of the instrument, but also from those caused by the uncertainty of refraction

In the present instance, the instrument employed was a 10 in circle, reading 10," which had been subjected to very rough usage, having more than once been bent and reflattened, so that its errors sometimes amount to 40" or more, each star was observed four times, twice with face to the right, and twice to the left, and the observations were afterwards reduced to the meridian, an operation which is very easily and quickly performed by means of the sliding rule

At Karanja			At Bombay Light house		
Stars obsd	Latitude.	Mean of each pair	Stars obsd	Latitude	Mean of each pair
β Cephei,	18 51 07 0	18 51 19 3	α Persei,	18 53 23 0	18 53 32 2
α Pisc Aust	18 51 31 6		γ Eridani,	18 53 41 4	
α Persei,	18 51 07 6	18 51 15 5	α Geminorum,	18 52 28 3	18 53 34 4
γ Eridani,	18 51 23 4		α Cans Mins.	18 53 40 5	
		18 51 17 4			
Diff Lat of Karanja and Light house by Trig Survey,		+2 16.6			
		18 53 34 0	Lat of Light house,		18 53 33.3

Here while the individual observations differ greatly, the several pairs have a close agreement, and would doubtless have been still nearer, had the altitudes been more nearly equal, for α Persei and γ Eridani differed more than 2° in alt.

By this method with a moderately good instrument, the Latitude might be found in one night within 1", or much nearer, supposing the catalogues correct.

Mahadeo, 4th March, 1835.

[The method pointed out by Lieut JACOB is so obvious as to have been, we imagine, at all times practised by astronomers, we however give insertion to it as likely to furnish an useful hint to amateurs and beginners —ED]

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4 —*Fossil Shells found in the Kasya Hills. By Dr* McCLELLAND.

" Though not two days in these hills, I have found about a thousand specimens of sea shells, at various altitudes, from 1000 to 4200 feet, and even in and around the station of Churra Punji itself On a hasty glance, I think I have recognised of known genera, Pectens, Cardiums, Turritella, Teredo, Serpula, Melonia, Cirrus, and Pleurotoma, among my collection, but many will probably be found on examination to be new genera, and all the species or many of them at least will be found to be new

" What makes the discovery of these remains of more consequence is, that I have found them in rocks that have been hitherto considered as primitive in India, at least, but we shall now be able to correct our classification, and to remove many contradictions that exist between the result of Indian and European observations ! !

" The *Ponar* Fossil is here in great perfection, and is connected with the numulites, but it must come into a new genus, or sub-genus, which may be called annulite, it was the thing that first struck WALLICH and GRIFFITH in the rocks of the Doli river, at the base of the hills, though I did not point it out "

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5 —*Note on the Pea Stalactite of Tibet By Mr* STEVENSON

The accompanying sample of a calcareous concretion was a few months ago sent to me for examination, from Dr CAMPBELL of Nipál, and found in *Tibet*. The mineral is used in medicine by the Tibetans, and called *Kári* by the inhabitants of *Nipál*.

It appears to me to be a variety of the *Roe-stone* of geologists, in a disintegrated state, probably washed from its matrix by hill torrents, and deposited in pools

A careful analysis of an average from the bulk gave me the following result

Description In globular concretions, from the size of a grain of mustard seed, to that of a *pea*, colour cream yellow, and a few slightly tinged blue, very compact —hardness equal to statuary marble, externally opake, internally crystalline, crystals needle-like, and radiated from the centre of each globule Effervesces strongly in sulphuric, nitric, and muriatic acids, in which it readily dissolves, leaving a few grains of various coloured sand.

According to my analysis, it is composed of,

Carbonate of lime, ...	90.
Alumina, ...	5
Silica, or sand of various colours, ...	5.
	100.

If I may be allowed to venture an opinion, I would say, that it is a *new mineral*, or one not described in any of the European scientific journals. If so, Dr CAMPBELL will be entitled to the thanks of mineralogists, for his discovery. I would (though with diffidence) suggest that the mineral should be named *Campbellite*, or *Tibetan comfits*, though the latter is not a scientific name, notwithstanding its comfit-like appearance.

6 —*Observations of Halley's Comet, made at the Honorable Company's Observatory at Madras*

The comet first made its appearance on the 30th August, at 15th. 40m mean time, astronomical reckoning, or August 31st, at 3h 40m A M civil reckoning —the observation are as follows

		Madras M T			Right Ascension.			Declination.		
1835	D	h	m	s	h	m	s	h	m	s.
Aug	30	15	47	30	5	42	22	+24	43	0
	31	15	33	28	5	49	52	24	50	0
Sept.	19	15	39	40	6	10	57	29	36	30
	20	15	6	48	6	12	43	30	0	6
	23	14	54	51	6	17	29	31	36	46
	26	4	22	59	6	24	39	33	49	15

From the above observations, it would appear that the comet is about ten days later than the time predicted for its return —At present it is invisible to the unassisted eye of *ordinary* observers, and will probably remain so until the 21st of October, when it will be situated in the constellation Coronæ Borealis, near to β, the proper time to look for it on this day will be immediately after sun-set.

T G TAYLOR,
H C Astronomer

September 28, 1835

[The comet has been visible here since the 12th Oct , after sun-set, and is now very bright —ED]

A French translation of Lieutenant BURNES's interesting Travels to Bokhara, &c has been announced as in preparation at Paris, with notes, by KLAPROTH, the distinguished orientalist —*Foreign Quarterly Review*

XII —*Illustrations of Nipalese Zoology, prepared for publication*

[We have been requested to insert this catalogue in continuation of the Prospectus published in p 356 —ED]

MAMMALIA

Part 1st.

Plate 1 —The Jharal, wild goat. *Capra jharal*, mihi, mature male Inhabits the Kachar

Plate II —The Nahoor, wild sheep *Ovis Nahoor*, mihi. Fig 1, the mature male, 2, the head of mature female, 3, young male Habitat Kachar

Plate III fig 1, the Thar antelope *Antelope Thar*, mihi, mature male, figure 2, the Ghoral antelope *A Ghoral*, HARDWICKE. Mature male Inhabit central and northern divisions of Nipal respectively

Plate IV fig 1, female Ghoral, fig 2, young male.

Plate V —The Changra or shawl goat of the Himálaya towards Nipal Fig 1, the larger or true shawl goat, figure 2, the lesser variety Inhabit the Kachar.

Plate VI —Sculls. Figs 1 and 2, the Jhâral mas., 3 and 4, the Nahoor fem , 5 and 6, the Thar mas , 7 and 8, the Ghoral mas , 9 and 10, the Banbhera, or Himálayan variety of Ovis. Ammon. mas junior, 11 and 12, the Phusro Jaraï, or Cervus Aristotelis. Horns cast. mas , 13 and 14, the Ratwa Mantjac, mas. (N. B. Several of the sculls, with the horns torn off, show the cellular cavity of the core)

Plate VII figs. 1 and 2, head of the larger Changra, 3 and 4, scull of the lesser.

Plate VIII fig 1, head of the Thar, mature male, 2, scull of ditto, 3, fore-foot, and 4, hind foot of ditto

Plate IX fig 1, head of the Chiru antelope, mature male, 2, direct front view of the nose of ditto, showing the position of the intermaxillary pouch and its connexion with the nares, 3, scull of ditto, 4, the inguinal pouch of ditto

Plate X —The Chiru antelope. *Antelope Hodgsonii*, C ABEL, mature male *A Gazella* of H SMITH's sub-genus Habitat the open plains of N E Thibet, fig 2, represents the female

Part 2nd

Plate I fig 1, the male, 2, the female, and 3, the young male of the Ratwa Mantjac Inhabits the central region of Nipal

Plate II —The Nipalese Paradoxurus *P Nipalensis*, mihi, mature female Inhabits central and northern regions of Nipal

Plate III —The Wah *Ailurus Fulgens*, mature male Figs 2 and 3, showing the attitudes of repose of the same Kachar only

Plate IV —The Kathiah Nyool of Nipal *Martes Kathiah*, mihi Central and northern regions

Plate V —The Bharsiah of the Nipalese, mature male *Ursitaxus Inauritus*, mihi PENNANT'S Indian Badger? Fig 1, the head of ditto, natural size, 2, scull of ditto, ditto, 3 and 4, direct and oblique views of the lower jaw, 5 and 6, ditto ditto of the upper jaw, 7, the fore foot, and 8, the hind

Plate VI —The Konal of the Nipalese *Sciuropterus magnificus*, mihi Central and lower regions of Nipal

Plate VII —Different views of the preceding

Plate VIII —Head of the Ratwa Mantjac, mature male

Plate IX —Head and members of the Nipalese Paradoxurus Fem 1-1, vulva and glands, 2-2, anus and pores, 3, fore foot, 4 and 5, hind foot

Plate X —Scull of the same animal

Plate XI —Front and side views of the head of the Wah Figs 1 and 2 exhibit the ear, denuded of all hair, and invested with it, 3, the fore foot (sole of), and 4, the hind foot

Part 3rd.

Plate I —The Machabba, or Malva of the Taraï *Paradoxurus Bondar?* Inhabits the open tracts of the lower region of Nipal. Figs 1 and 2, side and front views of the head, 3, sole of hind foot.

Plate II —Thulo Chuah of the Nipalese Norway Rat? all parts of Nipal

Plate III fig 1, the Nyool of the Taraï *Mangasta Cafra?* 2, the Nyool of the hills *M* Javanica?* Central region of Nepal

Plate IV fig 1, *Viverra Indica.* The Sayer of the Tarai; 2, *Viverra Rasse*, also called Sayer Both inhabit the Taraï portion of the lower region of Nipal exclusively, 3, head of Rasse, 4, ditto of Indica, 5 and 6, anal and genital parts, with the skin on and off, 7, the hind foot to the tarsus, 8, head of Rasse

Plate V —The Chittra Bilow of the Taraï. *Felis Serval?* varietas, mature male *Felis Viverrinus* of HARDWICKE? Open parts of lower region of Nipal only

Plate VI —The Biraloo of the Nipalese *Felis Lynchus Erythrotus*, mihi. Central region and lower; 2, the young of ditto, 3, the Moormi Cat, *F. Murmensis*, mihi Central region only Mature male

* Since ascertained to be a new species of M. auropunctata, mihi. Gold-tipped Mongoose

Plate VII —The Arna, *Bos Arna*, mas The Tarai and Bhaver

Plate VIII —*Gulo Orientalis* Lower hills of Nipal. Fig 1, the fore, and 2, the hind, foot

Plate IX —Sculls 1-1, the Sayer, 2-2, the Machabba, 3-3, the Mul Sampra, or *Martes Hardwickii*, 4-4, Oriental Glutton, 5-5, the Highland Nyool, or *Mangusta Javanica*.

Plate X —Lowland Nyool 1 and 2, the head; 3, the ear with hair reflected, 4, fore foot, and 5, hind ditto, 6-7, head of Highland Nyool, 8, its ear, 9, its fore, and 10, its hind, foot, 11, 12, 13, 14, scull of Lowland Nyool

Part 4th

Plate I —The Phusro Jarai of the Nipalese *Cervus Aristotelis* of SMITH, mature males, and head of ditto Figs 1 and 2, from one specimen, and 3 and 4, from another

Plate II fig 1, scull of *Ailurus Fulgens*, 2, upper teeth of ditto, 3, lower teeth of ditto, 4, scull of short-tailed Manis, 5 and 6, upper, and 7, lower, jaw of ditto, all nat size

Plate III —The Lokriah Squirrel, *S Lokriah*, mihi Central region of Nipal Nat size

Plate IV fig 1, common Musk Shrew of Nipal *Sorex Indicus?* 2, common field mouse of Nipal, 3, Sano Chuah, or lesser common rat of Nipal *M Ratus* Black rat? All natural size Fig 4, the scull, and 5, the hand, of the Shrew

Plate V —The Nipalese cat *Felis Nipalensis*, mature male, 2, head of ditto

Plate VI —Black and white flying Squirrel *Sciuropterus* Alboniger, mihi Central and northern regions Fig 1, the fore foot, and 2, the hind Nat size

Plate VII.—Ghoral Antelope Figs 1 and 2, head of mature male, 3, head of young male 4, scull and horns of male, 5, the fore, and 6, the hind, foot

Plate VIII —The Buansu, or wild dog of the Nipalese *Canis primævus*, mihi, fig 2, reclining figure of ditto

Plate IX —Comparative views, on an uniform scale, of the Buansu, Indian jackal, and Indian fox

Plate X —Head of the Buansu, nat size, fig 2, small front view of ditto

Plate XI —Sculls of Buansu, Indian jackal, and Indian fox Figs. 4 and 5, scull and teeth of Buansu of nat size.

Part 5th

Plate I fig 1, scull and horns of the Bara Sinha, or Indian type of the true Stag Inhabits the Bhaver and saul forest of Nipal Fig 2, horns of the Chittra, or spotted Axis, fig. 3, horns of Laghuna or Pada or Porcine Axis Two latter inhabit the Tarai All three on an uniform scale

Plate II figs 1, 2, 3, various specimens of the horns of the Phusro Jarai of the Nipalese *C Aristotelis* of SMITH. *Hipehaphus* of DU VAUCEL, 4, horns of the Rato Jarai, 5, horns of the Kalo Jarai, 6, horns of the Bahraiya, *Cervus Bahraiya*, mihi (The Maha of the western portion of these hills) All the animals inhabit the saul forest and Bhaver of Nipal.

Plate III —Young males of the two varieties of the musk proper to the Kachar region of Nipal

Plate IV —Female of the Nipalese variety of Felis Serval. Head of the same.

Plate V —Head of the Machabba, or Malva of the Tarái. *Paradoxurus Bondar?* mature male (N. B Long hair moulted off) Fig 2, the male organs of genera-

tion with the bald secreting surface on either side the sheath of the penis, 3, female organs of generation and anus, 4, the fore foot, and 5, the hind foot. (First despatch)

Plate VI.—Pteropus of central region *Pt. Lencocephalus*, mihi ½ of nat. size, (11 inches by 4-8, body and muzzle, uniform saturate brown, whole head and shoulders, rufous yellow)

Plate VII figs. 1 and 2, *Rhinolphi*, and 3, *Vespertilio*, of central region Nat. size.

Plate VIII fig 1, *Pteropus*, 2 and 3, *Vespertiliones*, of central region Nat. size

Plate IX —Heads and sculls of the *Vespertilionidæ* of the three preceding plates

Plate X —Head and members of the Langoor monkey of the central region

Part 6th

Plate I —The Chikara or Chouka, *A Tetracornis* Figs 1 and 2, horns of nat. size Habitat Tarai, mature male.

Plate II —Snakes of central region (N B All of them are innocuous)

Plate III —Young Porcupine of central region

Plate IV —Tibetan Mastiff, two varieties

Plate V.—Common Hare of central region Figs 2 and 3, Locusts of same region

Plate VI —Common Otter of Tarai

Plate VII fig 1, common Toad, and 2, common Frog, of central region

Plate VIII —Panther and Leopard of central region Mature males

Plate IX —Cabool grey-hound and scull, 3, scull of *Prochilus Labiatus*.

Plate X fig 1, *Prochilus Labiatus* of Tarai, 2, *Ursus Tibetanus* of central region of Nipal Fem, junior

Part 7th

Plate I —Dentition of *Rhinoceros unicornis* of the Tarai.

Plates II and III —Fishes of central region.

Plate IV —Members of the fishes of the two preceding plates.

Plate V —The Khar Laghuna, or brown Porcine Axis Fem Fig 1, mature, 2, junior, from living animal in 2nd and 3rd year of age

Plate VI. figs 1, 2, scull and horns of Yak of Tibet, mature male, 3, 4, 5, scull of *Ursus Tibetanus* of central region, junior, 6, scull of the Lassa Mastiff, old

N B For the clime and physiognomy of the three regions of Nipal, (*i. e* the Northern, Central, and Southern ones,) see the published Catalogue of the Mammalia.

Plate VII figs 1 and 2, Zibet of central region of Nipal two figures from different specimens, 3, the Urva of central and northern tracts, 4 and 5, fore and hind feet of Urva

Plate VIII.—Indian Dûmba sheep, mature male, 2, Cabool ditto ditto, ditto.

Plate IX —The Barwal or domestic sheep of the Kachar of Nipal, fig 2, the Hoaniah or domestic sheep of Tibet and of the Himálaya Mature males.

Plate X —The Wool-bearing Paradoxurus, *Paradoxurus Lanigera*, mihi, nat size Habitat the northern region of Nipal.

Plate XI —The short-tailed Manis of the central region of Nipal. (N. B. Proves to be a new species.)

Plate XII fig 1, Chittra or Axis, 2, Jhou Laghuna or spotted Porcine Axis, mature males. The Tarai of Nipal

(Second despatch)—*Extra sheets, three*

Plate I figs 1 and 2, scull of Ovis Nahoor, old male, 3-4, ditto of Ovis Banbhera, junior, 5-6, ditto of musk of Kachai, 7-8 ditto, of *Antelope Hodgsonii*, old male, 9-10, ditto of a Cervi Capra

Plate II —Head and limbs of *Ovis Nahoor*, old male

Plate III —5 sketches of horns of Ratwa Muntjac, (to prove the various forms they are apt to assume)

Two more extras

Plate IV —*Ursus Tibetanus*, male of two years, and head and limbs of ditto, and 3, views of scull and teeth

Plate V —*Ant Tetracornis*, Chikara or Chouka, male head of ditto, separate

(*March*, 1835)—*Another extra sheet*

Plate VI —Capra Jhárial, wild goat of the northern region Views of head and horns separate

(The Tehr of the western hills is a variety with nodose horns, and probably identical with H. SMITH's *C Jemlaïca*)

(*July 1st*)—*Extra sheet.*

Plate VII fig 1, The Arna, 2, Gouri Gáo, mature males (*Bubalus Arna* and *Bisonus Gavcens*) Tarai

Plate VIII. figs 1, 2, Arna, 3, tame Buffaloe, 4, Yák, 5, 6, Gáuri Gao Sculls and heads.

N B The delineations of the extra sheets to be substituted for prior drawings of the *same subject*

XIII —*Miscellaneous Extracts*

1 —*Influence of the Moon on the Weather* *By* F MARCET

[Extracted from Jamieson's Edin Phil Journal, 1835]

On the question whether the moon has any influence on the weather or not, there are two opposite opinions the great mass of the people, including sailors, boatmen, and most practical farmers, entertain no doubt whatever, of the influence of the moon, whether the change of the weather at the lunar phases will be from fair to foul, or from foul to fair, none of them pretend to decide beforehand, but most of them think, that at the new and full moon, there is generally a change of some kind On the other hand, philosophers, astronomers, and the learned in general, attribute this opinion altogether to popular prejudice Finding no reason, in the nature of atmospheric tides, for believing that changes should take place on one day of the lunation, rather than another, they consider the popular opinion to be unsupported by any extended series of correct observations

In the Annuaire for 1833, ARAGO, the learned editor, has presented the result of the observations of SCHUBLER in Germany, during twenty-eight years, or 348 synodic revolutions of the moon During this period of 348 new moons, &c. the number of rainy days were as follows

It rained on the day of the new moon, ...	148	times.
Do.. .. ...do . ..first quarter,.	156	do.
Do . .. ...do ....full moon, ...	162	do.
Do . . do.... last quarter,..	130	do.

The observations of SCHUBLER were made during eight years at Munich, four years at Stuttgard, and sixteen years at Augsburg As a good meteorological register has been long kept at Geneva, the author thought it would be interesting to ascertain from the tables, (which have been carefully published in the Bibliotheque of that city,) whether, during a period of thirty-four years, viz from 1800 to 1833, any inferences could be drawn for or against the popular opinion on the subject of lunar influence

He finds, during these thirty-four years, the number of rainy days and quantity of water fallen, to be as follows

	Rainy days	Water fallen
At the new moon,	123	432 lines
First quarter,	122	429 6 ditto
Full moon,	132	415 9 ditto
Last quarter,	128	368 6 ditto.
Throughout the whole period,	3,657	968 in 93 lines

Thus it appears, that during thirty-four years, or 12,419 days, comprehending 420 synodic revolutions of the moon, there have been 3,657 rainy days This gives for every 100 days, 29 45 rainy days, and we find, that

For every 100 days of new moon,			29 29	have been	rainy
Do	do	first quarter,	29 05	do	do
Do	do	full moon,	31 43	do.	do
Do	do	last quarter,	30 48	do	do

Hence, it is evident, that during these thirty-four years at Geneva, the days of new moon and the days of the first quarter have been just about as liable to be rainy days as any other common day of the month, while the days of full moon and those of the last quarter have been rather more liable But although the days of full moon have been rather more frequently wet days than those of the new moon, it does not follow that more water has fallen at full moon, than at the change The result of observation in that respect is as follows

For every 100 days of new moon,			there fell	102 9	lines
Do	do	first quarter,	do	102 3	do
Do	do	full moon,	do	90 0	do
Do	do	last quarter,	do	89 9	do

The average quantity for 100 days is 93 6 lines, whence it appears, that at the new moon, the first quarter, and the full moon, more water has fallen than on common days, at the last quarter, less The quantity fallen on the total of the lunar phases, surpasses that on other days in the proportion of 98 to 93 6 Another question is, whether a change of weather is more liable to happen on the four principal days of the lunar phases than on common days. But it must be first decided, what is meant by the term change of weather

This term should, the author thinks, be limited to a change from clear weather to rain, or from rain to clear weather, and not be understood to include, as some meteorologists make it, all changes, such as that from calm to windy, or from clear to cloudy, &c As the author accepts it, the weather must have been steady during two days at least, that is, that the weather has been clear, or that it has rained more or less during two consecutive days For example, a week has passed without rain, it rains on the eighth day, and on the ninth, the weather is again fine In this case, according to the author's definition, there is no change of weather

So also, if it has rained during five successive days, the sixth and seventh must

be clear, in order to constitute a change of weather This may be arbitrary, but at least it is not vague, and if practised, it will prevent, in the balancing of calculations, any leaning to a favorite hypothesis To avoid another error, into which some may have fallen, the author marks no change as occurring on lunar phases, but those which take place on the very day, and never those which may happen on the evening before or on the next day With these precautions, he finds that, during the thirty-four years, or 12,419 days, there have been 1,458 changes of weather Of this number, 105 have taken place at the epoch of the two principal lunar phases, viz 54 at the new moon, and 51 at the full moon. Now the whole number of principal phases during the thirty-four years is 840, therefore, as 12419 840 ∴ 1458 98 6, the number of changes which would have taken place at new and full moon, had these lunar phases had no more than the share of common days, but instead of which, the number was 105 Of the 54 changes at new moon, 32 were from rain to fine weather, and 22 from fine weather to rain Of the 51 at full moon, 31 were from rain to clear, and 20 from clear to rain Thus at the new and full moon, the changes to fine weather are to those to rain as 63 to 42 Having thus proved, that the epoch of new and full moon are not absolutely without some effect on the weather, the author examined, whether this effect was confined to those very days, or extended to the day following On the days following the new and full moon, there were 129 changes, instead of 98 6, which would have been the number had these shared the proportion only of common days With respect to the days of the first and last quarter, the changes on these were 96, which bring them nearly to the condition of common days. It is thus shown from the tables, that the chance of change at the new and full moon, compared with the chance on ordinary days, is as 125 to 117, and that the chance on the day following these two phases, compared with the common days, is as 154 to 117 Upon the whole, therefore, this examination lends some support to the vulgar opinion of the influence of new and full moon, but none whatever to any special influence of the first and third quarters With respect to the barometrical pressure, it is ascertained, that out of the 1,458 changes of weather, there were in 1,073 cases a corresponding rise or fall of the barometer, according as the change was from rain to fair or the contrary This is nearly as 3 to 4 Of the 385 false indications of the barometer, 182 were on a change from rain to clear, and 203 on a change from clear to rain Finally, of the 385 anomalies of the barometer, 17 were at full moon, and 10 only at new moon

2.—*On the Composition of the Rangoon Petroleum, with Remarks on the Composition of Petroleum and Naphtha in general.* By William Gregory, M. *D. F R S E.*

The author first adverted to the discovery, nearly about the same time, of paraffine by Reichenbach, and of petroline by Dr Christison The former occurred among the products of destructive distillation, the latter was found in the Rangoon petroleum, and they were soon found to be identical Reichenbach's researches on naphtha were then quoted, by which it appears, that that indefatigable observer could not discover, in the kind of naphtha which he examined, any trace either of paraffine, or of any other product of destructive distillation On the contrary, he found, naphtha to possess the characters of oil of turpentine, a product of vegetable life, and he succeeded in obtaining a precisely similar oil from brown coal, by distillation at 212°. The facts had led Reichenbach to

the conclusion that naphtha in general is not a product of destructive distillation, and consequently, must have been separated at a comparatively low temperature.

The author showed, that Dr CHRISTISON's discovery of paraffine, of which Dr REICHENBACH was necessarily ignorant, is inconsistent with this view, and detailed some experiments, by which he has rendered highly probable the existence in petroleum of eupion, another of the products of destructive distillation This substance is a liquid of sp gr 0 655, boiling at 110°, and very fragrant The author obtained from the Rangoon petroleum a liquid of sp gr 0 744, boiling at 180°, and rather fragrant

The oil of turpentine, as is well known, boils at 280°, and has a sp gr of 0 860 ' so that, at all events, the naphtha from the Rangoon petroleum is not oil of turpentine This was farther proved by the tests of nitric acid and iodine Similar experiments on one or two other species of naphtha led to similar results They all yielded a liquid of sp gr about 760, and, consequently could not be oil of turpentine The kinds of naphtha tried were Persian naphtha, obtained from Dr THOMPSON, and commercial naphtha, sold by M ROBIQUET, at Paris

The author concluded, that if the naphtha examined by REICHENBACH were genuine, there must be two kinds of naphtha, one a product of destructive distillation, the other the oil of turpentine of the pine forests of which our coal-beds are formed, separated by a gentle heat, either before or after their conversion into coal It is obvious that our common coal-beds have never yet been exposed to a heat sufficient for destructive distillation, since they are destroyed by a moderate heat, and we may therefore expect the petroleum of these coal-beds to be of the kind described by REICHENBACH, while the Rangoon and Persian petroleums, being products of destructive distillation, must have their origin, if in coal-beds at all, in such as have been exposed to a high temperature, and must consequently be very different from the ordinary coal-beds. In confirmation of this view, it may be stated, that Dr CHRISTISON could find no paraffine either in the petroleum of St Catherine's or in that of Trinidad or Rochdale

The author finally directed attention of the application of the paraffine as a material for giving light, as, when pure, it burns with a clear, bright flame, like that of wax, and might doubtless be obtained at a cheap rate in the East —*Edin. Phil Journ* 1835

[Since the above was in type, we have received a copy of the papers, and a specimen of the paraffine from Mr G SWINTON, with a list of queries which we will endeavour hereafter to resolve —ED]

3 —*Extracts from Proceedings of Zoological Society of London.*—1834.

August 12 —A collection of *land* and *fresh-water Shells*, formed in the Gangetic Provinces of India by W H BENSON, Esq , of the Bengal Civil Service, and presented by that gentleman to the Society, was exhibited It comprised forty species, and was accompanied by a descriptive list prepared by the donor, and also by detailed notices of some of the more interesting among them These notices were read they are intended by Mr BENSON for publication in the forthcoming No of the 'Zoological Journal'

From the time that he first became acquainted with the animal of a *shell* resembling in all respects, except in its superior size, the European *Helix lucida*, Drap , Mr BENSON regarded it as the type of a new genus of *Helicidæ* intermediate between *Stenopus*, Guild , and *Helicolimax*, Fér. He had prepared a

paper on this genus, for which he intended to propose the name of *Tanychlamys*, he finds, however, that Mr GRAY has recently described (Lond and Edin Phil. Mag, vol v p. 379), the same genus under the name of *Nanina* The generic characters observed by Mr. BENSON are as follows

NANINA, *Gray*

Testa *helicoformis, umbilicata, peritremate acuto, non reflexo*

Animal *cito repens. Corpus reticulosum, elongatum Pallium amplum, foramine communi magno perforatum, peritrema amplexans, processubus duobus transversè rugosis (quasi articulatis) omni latere mobilibus instructum, unico prope testæ aperturæ angulum superiorem exoriente, altero apud peripheriam testæ Os anticum inter tentacula inferiora hians, labia radiato-plicata Tentacula superiora elongata, punctum percipiens tumore oblongo situm gerentia. Penis prægrandis, antrum cervices elongatum latere dextro et prope tentacula situm Solea complanata pedis latera æquans Cauda tentaculata, tentaculum subretractile, glandulâ ad basin positâ humorem viscidum (animale attrectato) exsudante*

Mr BENSON describes particularly the habits of the species observed by him, which he first discovered living at Banda in Bundelkhand on the prone surface of a rock The animal carries the shell horizontally, or nearly so, is quick in its motions, and, like *Helicolimax*, it crawls the faster when disturbed, instead of retracting its *tentacula* like the *Snails* in general. In damp weather, it is rarely retracted within its shell, the foot being so much swelled by the absorption of moisture, that if it is suddenly thrown into boiling water, the attempt to withdraw into the shell invariably causes a fracture of the aperture In dry weather, the foot is retracted, and the aperture is then covered by a whitish false *operculum*, similar to that of other *Helicidæ* The two elongated processes of the mantle are continually in motion, and exude a liquor which lubricates the shell, supplying, apparently, that fine gloss which is observable in all recent specimens The fluid poured out from the orifice at the base of the caudal horn like appendage is of a greenish colour, it exudes when the animal is irritated, and at such times the caudal appendage is directed towards the exciting object in such a manner as to give to the animal a threatening aspect

Of several specimens brought to England by Mr BENSON in 1832, one survived from December, 1831, when it was captured in India, until the summer of 1833

Another *shell* particularly noticed by Mr BENSON is the type of a new genus, allied to *Cyclostoma*, which he has described under the name of *Pterocyclos* in the first No of the 'Journal of the Asiatic Society of Calcutta'

Specimens of a species of *Assiminia*, LEACH, were preserved alive in a glass, replenished occasionally with fresh or salt-water, until after the vessel in which Mr BENSON returned to England had passed St Helena

A *Snail*, obtained near Sicrigali, and the river Jellinghy, one of the mouths of the Ganges, is characterized by Mr BENSON as HELIX *interrupta*

In the character of the excrement being voided from an opening in the terminal and posterior part of the foot, instead of from the *foramen commune*, the animal of *Hel interrupta* differs most materially from the other *Helices* The angulated periphery of the shell shows an approach to *Carocolla*, but Mr BENSON is not aware that the animal of this genus differs from that of *Helix*. From *Hel.*

Himalayana, LEA, the *Hel interrupta* is distinguished by its peculiar sculpture, its spire is also more exserted.

The collection also contained specimens of an *Arcaceous Shell* found in the bed of the Jumna at Hamírpur in Bandelkhand. Mr. BENSON proposes for it the generic appellation *Scaphula*

Referring to specimens contained in the collection of a new form of *Solenaceous Shell*, described by him in the 'Journal of the Asiatic Society of Calcutta,' under the name of *Novaculina*, Mr BENSON describes also a second species of the genus which he has recently obtained from South America, and points out the characters which distinguish it from *Nov Gangetica*

The following Note by Mr BENSON, relative to the importation of the living *Cerithium Telescopium*, BRUG, adverted to at the Meeting on March 25, 1834, (vol v p 145,) was read

"The possibility of importing from other countries, and especially from the warmer latitudes, the animals which construct the innumerable testaceous productions that adorn our cabinets and museums, the accurate knowledge of which is so necessary, to enable the conchologist rightly to arrange this beautiful department of nature, must be an interesting subject to every naturalist, and will render no apology necessary for the following notices extracted from my journal. Their publicity may incite others who may have opportunities of trying the experiment, to follow the example

"January, 1832 Observed near the banks of the canal leading from the eastern suburb of Calcutta to the Salt Lake at Balhaghát, heaps of a *Cardita*, with longitudinal ribs, of a large and thick *Cyrina*, and of *Erithium Telescopium*, exposed to the heat of the sun, for the purpose of effecting the death and decay of the included animals, previously to the reduction of the shells into lime

"Early in the month I took specimens of them, and leaving them for a night in fresh water, I was surprised to find two *Cerithia* alive I kept them during a fortnight in fresh water, and on the 22nd January, carried them, packed up in cotton, on board a vessel bound for England After we had been several days at sea, I placed them in a large open glass, with salt water, in which they appeared unusually lively I kept them thus, changing the water at intervals, until the 29th May, when we reached the English Channel I then packed them up, as before, in a box, and carried them from Portsmouth to Cornwall, and thence to Dublin, which I did not reach until the 14th June, here they again got fresh supplies of sea-water at intervals One of them died during a temporary absence, between the 30th June and 7th July, and on the 11th July, the survivor was again committed to its prison, and was taken to Cornwall, and thence to London, where it was delivered alive to Mr G B SOWERBY on the 23rd July

"This animal had thus travelled, during a period of six months, over a vast extent of the surface of the globe, and had for a considerable portion of that time been unavoidably deprived of its native element"—W. H. B.

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4 —*Minerals of the Trappean Rocks of Bombay.*

The following list of the minerals which occur in the volcanic rocks of the several islands in the harbour of Bombay is extracted from a paper by Dr. R. D. THOMSON in the '*Records of General Science*,' *for April*, 1835

1 Basalt of Salsette dark-grey or blackish, with numerous crystals of olivine and augite interspersed.

2 Black basalt of Elephanta, presenting a homogeneous aspect when fractured, but frequently containing minute portions of olivine, sometimes in rounded granules, at others crystallized texture highly indurated This and the other variety fuse before the blowpipe per se into a mass resembling pitchstone The celebrated figure of the elephant, close to Galliputi, consists of this rock, but it appears to be of limited extent

3 Amygdaloid, appearing at the great temple of Elephanta, possesses a hard wacke basis, containing cavities filled with rock crystal and zeolites, &c The rock has a purplish aspect, and is evidently decaying in many situations, by the readiness with which the atmospherical influences act by the medium of the amygdaloidal cavities. Before the blowpipe this rock simulates fused basalt

4. Yellowish gray claystone porphyry, at the lower cave of Elephanta The predominating particles have a yellow resinous appearance, with a black basis.

5 Green claystone porphyry, appearing at Babula Tank fine ground, and admitting of a good polish, interspersed with dark-coloured soft particles, which have an even fracture, and appear to be small masses of indurated clay

6 Amygdaloid, with a light-coloured porphyritic basis and green cavities, accompanied generally with large crystals of calcareous spar from the neighbourhood of Parell The calc-spar is sometimes dark-coloured, probably from the effect of reflected light

7 Numerous large fragments of shell conglomerates may be observed on the shore of Elephanta, consisting of a nucleus of porphyry, or amygdaloid, closely surrounded by adhering bivalves, which afford means of extending the limits of the growth of the mangrove

The amygdaloidal cavities contain numerous species of various classes of minerals, of which under the genus *silica* may be enumerated, 1, rock crystal, termed *palanca* in the Malabar language, and *spadika* in the *Grantham* dialect, 2, quartz, 3, milk and rose do, 4, calcedony, 5, amethyst, 6, agate, 7, cornelian, 8, oriental jasper, or bloodstone, rare at Bombay, but abundant in Gujerát and Cambay

Of the alkaline class are, 1, calcareous spar, 2, mesolite, whose composition (by THOMAS) is expressed by the formula $3\,Al\,S + (\frac{5}{2}\,C + \frac{1}{2}\,N)\,S^3 + 3\frac{1}{4}\,aq.$

3 Heulandite, in Caranja and Elephanta, in large white crystals

Of the cornelians a beautiful variety is brought to Bombay, containing elegant arborizations resembling the ramifications of inclosed mosses, a phenomenon which in many instances appears to be justly attributable to such a cause The remark of PLINY, "Infestantur plurimis vitiis—aliis capillamentum limæ simile*," with regard to rock crystal, refers to the presence of titanite The same naturalist observes of rock crystal, "Oriens et bene multis, sed Indicæ nulla præferturt†," which is ignorantly denied by GARCIAS ab orto, who was for several years viceroy of India. He says, "nullo autem ex prædictis loco crystallus invenitur quemadmodum nec per universam Indiam‡."

The bloodstone, or oriental jasper, appears to be imported from Gujerát. It is characterized by presenting a greenish appearance, with numerous blood-red streaks or veins, traversing it in various directions It is to the latter species, or to the mock pearls so frequently employed as ornaments by the inferior castes, that we are to refer the expression of the historian of ALEXANDER "lapilli ex auribus pendent§." But with regard to the "gemmas margaritasque mare litoribus infundit," it is not easy to give a satisfactory explanation, although the latter obviously relate to the pearls of the Indian Seas.

* Hist. Nat. Lib. xxxvii c 2 † xxxvii 2 ‡ Hist. Arom. i. c171. 171.

§ Quint. Curt. i. 8. c. 9.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of September, 1835

Day of the Month	Observations at 10 A M							Observations at 4 P M.							Register Thermometer Extremes		Rain	Wind			Weather		
	Standard Barometer, at 32°	Wet Barometer, at 32°	Aqs. Ten. deduced	Thermometer in air	Diff or M T Depress.	Leslie's Dif Hygrom	Hair Hygrometer	Standard Bar at 32°	Wet Bar at 32°	Aqs Ten deduced	Thermometer in air	Diff or M T Depress	Leslie's Dif Hygrom	Hair Hygrometer	Cold on roof	Heat in sun		Morning	10 A M	4 P M	Day-light	10 A M	4 P M
1	29,591	28,416	1,173	82,6	2,3	2,4	98,	484	,310	1,174	84,3	4 1	3,0	97,	75,3	94,8	1,00	NE	se	se	clear	overcast.	drizzle
2	,711	,540	,171	83,7	3,4	3,6	96,	,607	,356	,251	85,9	5,6	5,8	91,	76,0	102,2		SE	sw	s	cumuli	fine	fine
3	,669	,496	,173	84,7	3,7	3,8	95,	,597	,297	,300	86,3	5,4	5 7	91,	77,0	119,5		o	w	sw	fine	do	fair
4	,645	,347	,297	86,1	4,1	4 3	97,	,463	,176	,287	87,5	4,3	4,0	96,	80,4	125,4	0,10	NW	sw	nw	clear	cum str	threatning
5	,680	,426	,234	85,0	4,8	5,2	93,	,556	,247	,309	88,2	8 3	8,0	7,	77,5	103,1		E	se	se	cumuli	do	fine
6	,775			83,5	6,1			700			82,2	4,6			76,2	88,9		E	ese	s	strati	cumuli	rain.
7	,733	,543	,190	85,0	5,6	5,0	93,	,627	,448	,179	84,9	4,2	3,9	96,	75,0	95,2	0,35	E.	se	se	fine	do	dull
8	,709	,551	,158	84,1	5,2	4,1	95,	,590	,336	,254	86,7	6,3	5,6	92	77,0	109,6		S	sw	sw	cir cum	cloudy	cumuli
9	,696	,497	,199	85,2	4,6	4 3	95,	,569	,373	,196	85,2	5,7	5,1	93,	79,1	107,5		S	sw	sw	do	do	dull
10	,708	,484	,224	83,3	5,2	5,0	93,	,583	,260	,323	88,0	8,2	7,6	89,	77,8	112,2		s	sw	sw	fine	cumuli	cum str
11	,724	,482	,242	86,4	6 1	6,2	91,	,605	,280	,325	88 6	10,1	9,6	83,	77,8	113,0		o.	se	se.	do	fine.	fine.
12	,720	,447	,273	87,4	7,0	6,8	89,	,606	,270	,336	89,4	10,2	9,3	84,	77,5	118,0		o	ne	N F	clear	do	do
13	,709			85,1	7,5			,578			88,0	14,7			76,1	122,2		r	N	n	do	do	do
14	,611	,319	,292	88,3	6,2	6,1	91,	,508	,162	,336	89,4	8,1	7,8	88,	80,0	119,5		n	ne	o	do	do	nimbus.
15	,663			83,4	6,6			,552			82,5	5,6			78,4	91,5	0,40	NE	NE	ne	cum str	dull	showery
16	,491	,347	,144	83,4	3,4	3,3	98,	,440	,392	,048	82,0	3,0	3,1	98,	74,5	76,1	4,00	N	NE	ne	sett rain	storm	storm
17	,696	,606	,090	81,7	2,6	3,0	99,	610	,484	,126	83,6	3 0	2,9	98,	72,1	85 0		S	sw	sw	do	overcast.	drizzle
18	,769	,735	,034	81,3	4,4	3,8	96,	,632	,485	,147	84,0	4,9	4,4	95,	75,4	101,2	0,24	W	sw	se.	cum cir	fine.	cloudy
19	,722	,583	,139	83,5	4,2	3,8	96,	,594	,412	,182	84,7	4,6	4,6	94,	75,6	90,3		o	sw	sw	do	do	hazy
20	,739			79,8	2,5			,634			82,2	6,4			72,3	89,8		o	s	o	sett. rain	rain	fine
21	,714	,589	,125	82,7	3,0	3,0	98,	,594	,438	,156	84,1	3 6	2,8	94,	75,2	98,2	0,44	e	ne	e	scud	cumuli.	cloudy
22	,658	,536	,122	83,1	3,7	4,2	94,	,544	,434	,110	83,4	3,8	2,5	99,	74,0	102,1	0,80	E	e	e	heavy rain	do	rain
23	,653	,600	,053	82,2	2,7	2,7	99,	,560	,484	,076	82,2	3 6	2 7	100,	74,0	81,4	0,85	F	se	se	rain	rain	overcast.
24	,713	,596	,117	82,3	3,3	2,6	100,	,608	,523	,085	82,0	3,3	3,0	95,	73 5	82,0	0,74	ese	se	se.	cumuli	cloudy	drizzle
25	,742	,647	,095	82,5	3,6	2,6	97,	,663	628	,035	81 1	2,5	2,7	98,	73,5	80,0	0,30	S	se	se.	gale.	rain.	cloudy
26	,724			81,0	5,5			,689			80,0	4,1			74,2	85 0	0,12	S	s.	sw	rain	do	cum rain
27	,752			80,0	8,6			647			83,7	13,0			75,2	107,1		s	sw	W	clear	clear	clear
28	,762			82,3	5,8			,679			85,8	11,2			77,0	109,8		sw	sw	w	cloudy	cumuli	fine
29	,810			83,2	6,0			,710			86,8	11,4			73,5	113,5		S	s	w	fine	fine	clear
30	,804			84,6	7,8			,746			87,0	19,9			78,5	121,5		s.	o	n w	clear	clear	do
Mean	29,702	28,514	1,169	83,7	4,8	4,1	95,	,590	,371	1,201	85,0	6,8	5,0	93,	75 0	101,8	9,34	changeable			showery, seasonable		

A slight leak having been discovered in the pluviometer hitherto registered, the rain has this month been inserted from the Surveyor General's register, merely putting each entry back one day to correspond with the actual time of fall The rain for three months past should be also increased nearly one-fourth, viz. June, 12 71, July, 18 12, August, 12 12, or 13·92, 19·66, and 13 10, if the *lower reservoir* be preferred

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JOURNAL

OF

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No. 46.—October, 1835.

1.—*Report on some Inscriptions found at Hammam, on the Southern Coast of Arabia*, 1835. *By Messrs.* T. G Hutton, *Asst. Surgeon, and Lieut.* J Smith, *of the Palinurus Surveying Vessel.*

[Communicated to the Asiatic Society by the Government of Bombay. See Proceedings, 2nd Sept.]

March 14*th*, 1835.—The accompanying inscriptions were found in the neighbourhood of *Dis*, a Bedouin town, a few hours distance from *Ras Sharma*, on the southern coast of Arabia.

The natives who came off to the ship represented it as a populous, well-cultivated district, abounding in vegetables and fruits of various descriptions. Having learned from these persons that there were a number of ancient buildings, and some writing in a character unknown to the Arabs, we naturally felt an inclination to make a personal inspection of them; and to effect this with security, Captain Haines sent our pilot, a native of the place, on shore, to request the Ruling Sheikh to grant us his firman, and a few Bedouin attendants. In reply, a letter was sent off, making a most exorbitant demand of money, rice, copper, and sundry other very useful articles, specifying the individual quantities with much nicety and precision, as a price of his protection. This of course was politely declined; and from a subsequent conversation with some of the party themselves, they appeared not only to regret the exercise of their cupidity, which had deprived them of at least a few presents from the ship, but seemed to be sensibly ashamed of a conduct so much at variance with the hospitable treatment we had universally met with since leaving Maculla.

We left *Sharma* without remarking any thing further than the remains of two water tanks, much resembling in form and structure, those we saw on the summit of *Hasan Ghorâb* There appeared also to have been a fort and a small town on the point of the cape; but time had been so active in her work of destruction, that the traces merely were visible. At *Gossyrh*, we were more fortunate, and although the distance was greatly increased, it was deemed desirable to obtain some correct information of a part of the country, which in all human probability may never be visited again under such favourable circumstances, and which promised to prove so interesting in an antiquarian point of view With the permission of Captain HAINES, Mr SMITH and myself started from *Gossyrh*, and after a tedious journey of about 15 miles, through a flat, barren country, we halted for the night about 10 P. M. under the ruins of a very old fort Here we slept, and the following morning commenced our researches. The Bedouins, who attended us, unfortunately knew nothing of either the ruins or the writing, but having recalled to our recollection the name of a Bedouin, who had been on board for medical assistance at *Sharma*, we inquired for his residence, which he had informed us was in the neighbourhood, and found him exceeding civil and obliging in showing us every thing he considered might be of interest to us. Like all his Arab brethren, he knew nothing but what his own external senses had taught him, and in common with them, he adopted the easy method of accounting for forts, tanks, inscriptions, &c by ascribing them all to the superior genius of the Feringís, of whom they seem to have entertained a kind of superstitious dread. of course little else than the names of the places could be procured The fort is called *Hasan el Meimelí*, and from its size, the nature of the materials of which it is composed, and its form, appears never to have been remarkable for its strength or stability It is now completely in ruins After traversing great part of the neighbouring country, which is known by the name of Hammam, we at last came to *Jibul Aaledma*, where we were directed to look for the inscriptions.

About half way up the hill. which we estimated about 200 feet, we came to a spacious cave, on the sides of which, wherever a smooth surface presented itself, we discovered the traces of writing Most of it was executed in a species of red paint, but in one or two parts, a black composition had been made use of, by the ravages of time, many of them were nearly obliterated, but in others, by wetting the surface, and removing the dust which had accumulated, the characters became much more legible, and in one part in particular, the colour became quite brilliant, looking as fresh as though it had been just laid on.

Having discovered and copied those very perfect inscriptions of *Hasan Ghorâb*, we were at once struck with the resemblance they bore to these now before us, and on a more minute comparison, the letters will be found generally to correspond, although there are a few here, which do not present themselves in the former As it would appear, that the style of writing is now extinct, at least entirely so in this part of Arabia, it becomes a pleasing subject of speculation by what persons they could have been executed. The characters certainly bear a stronger assimilation to the Ethiopic than to any other known in the present day, and consulting the history of Arabia, we find, that prior to the Persian conquest of *Yemen*, under NOUSHIRVAN, the whole of that fertile province was under the sway of the Abyssinians, many of whom having become enamoured of its beauties, permanently settled here I think such are fair grounds for assuming that these are the remains of that people, especially as we know them to have been an enterprising commercial nation, with talent and qualifications, which fitted them for such design as *Hasan Ghorâb*, from the execution of which the native inhabitants would have shrunk with despair For a solution of these difficult questions, however, it will be more becoming in us to preserve silence, and leave them to the disposal of persons better qualified by their peculiar studies and more extended information on such points. I may here mention the coincidence of the name *Hasan Ghorâb*, and *Bait Ghorâb*, the fort and house of *Ghorâb*, which latter is one of the most populous and powerful tribes in the neighbourhood of *Hammam* On questioning one of the tribes concerning the origin of his title, he told us, his ancestors came from *Hasan Ghorâb*, a place, however, only known to him by hearsay. There are now many intermediate tribes between the two places, so that should the information be correct, we may infer that this is merely a branch of the family drawn here by the comparatively fertile nature of the soil over that about *Hasan Ghorâb*

With respect to the general features of the country about *Hammam*, it wears a most unpromising aspect, there being to all appearance nothing but barren hills, but on entering the ravines and valleys, the scene becomes suddenly changed, and the eye is once more gratified by the visible marks of cultivation and the industry of man In each corner of the valley may be seen a thriving date grove, and sometimes pretty large portions of grounds, covered with Taam, onions, garlic, sweet potatoes, and a variety of melons and pompions, one species of which is called the "Bortugal," for what reason it would not appear very evident. The Nebek and cocoanut thrive well. After searching about for further curiosities, we left *Hammam* about noon, and instead of

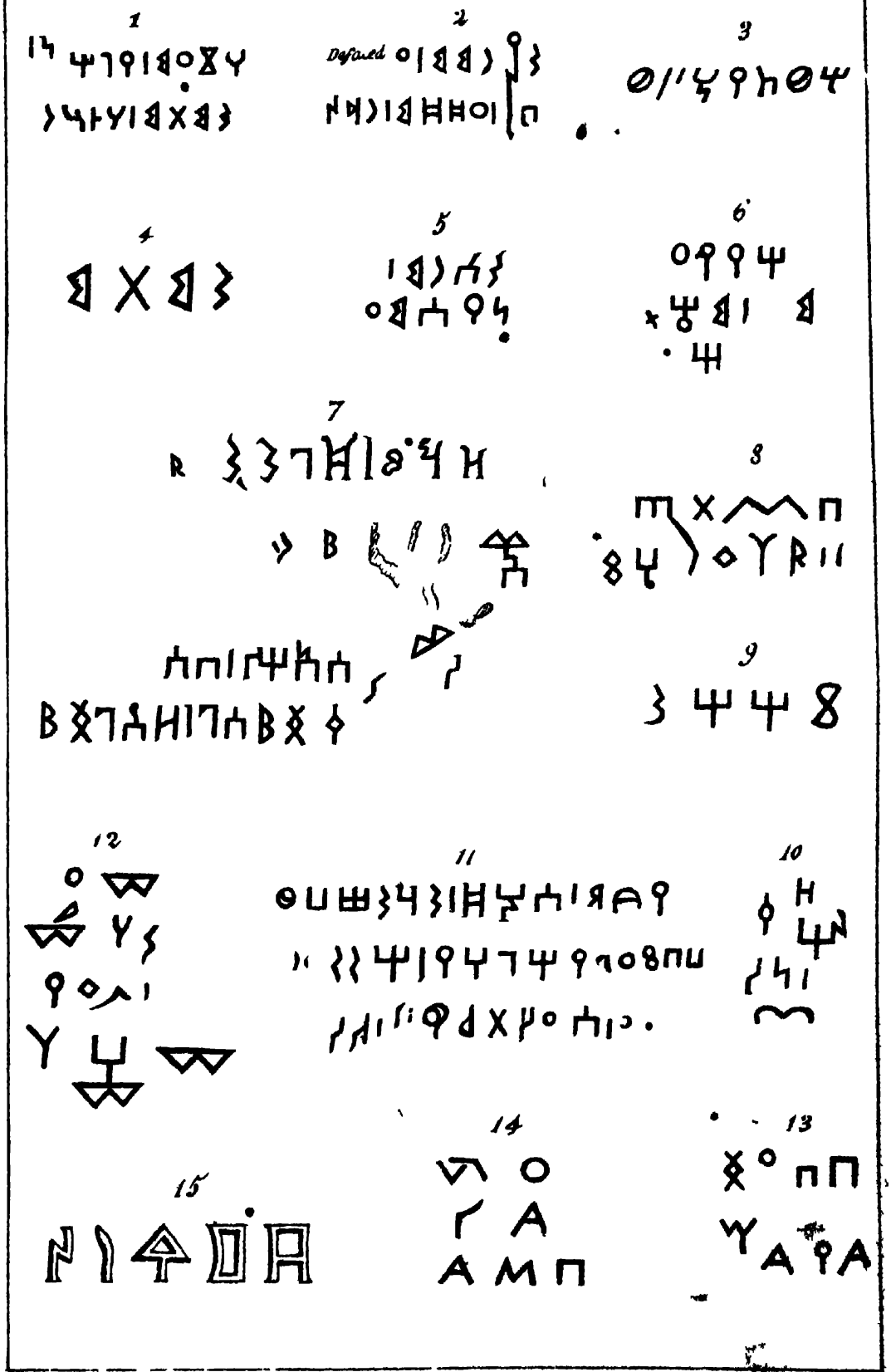
returning direct to *Gossyrh*, we chose a path nearer to the distant range of *Assad*, and after much fatigue, and some little risk, we arrived at the old fort of *Maaba*, about 12 o'clock at night We were led to make this deviation in consequence of the character we received of the fort from the natives, who informed us, it was composed entirely of hewn stone, and in a high state of preservation, a distant hope too of finding further inscriptions prompted us to visit the place.

In our search for inscriptions, we were disappointed, neither could we learn from the people about, that there existed any This, however, should not damp a person's ardour in quest of antiquities, as many of the Arabs positively cannot recognize writing when they see it, if it differ at all from the modern Arabic We saw an instance of this at *Hammam*; having accidentally found a few characters engraved on a stone on the road side, we immediately stopped to take a copy, while the Bedouins anxiously inquired, "why we were writing the stone," as they simply expressed it, and on being informed that we were copying the writing upon the stone, they seemed half incredulous about it A short time after this, one of them took me to look at a stone on which he said there was some writing, it proved, however, to be nothing but some natural marks on the surface of the rock, and when I told him this, he laughed, and candidly told me he knew no better

The fort of Maaba, to all appearance, has been strong and well constructed, of stones and mortar, though the former are not hewn, as we were informed they were There are no embrasures for guns, but numerous loop-holes for muskets or matchlocks. The plan of the building seems good for defence, and its position admirably chosen on a rising ground, in the point of convergence of three fertile valleys well cultivated and thickly planted with date groves It was said, this was one of the castles that defended the market road to *Hadramaut*, where are many others of a similar description The road still passes under its dilapidated walls From hence to *Gossyrh* is about five or six miles.

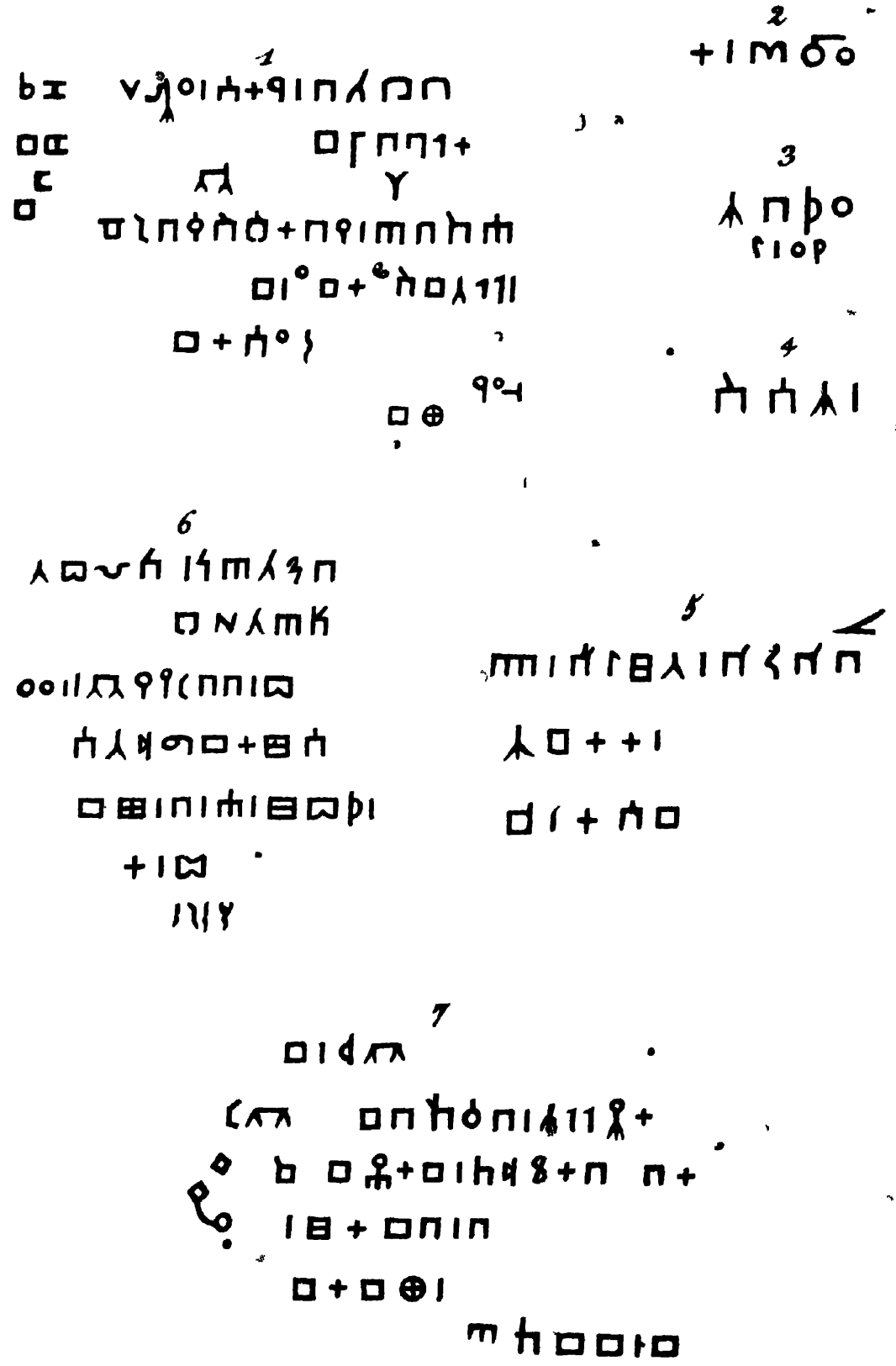
April 1st, 1835 —In prosecuting the survey of the coast, we again heard of some inscriptions about 40 miles to the eastward of *Hammam*. Lieut Sanders, Mr. Smith, and myself, with the concurrence of Captain Haines, started off for the purpose of copying them, after having previously examined the ruins of *Hasan Mesándh*, situated close to the beach, on a gentle insulated eminence. The foundation wall is now all that remains, the stones of which have evidently been hewn, and strongly cemented with mortar. Every thing around bears striking testimony of its antiquity It has originally served for the protection of a village, the position of which

Inscriptions near Ihs on the South Coast of Arabia



J B Hassin lith

Inscriptions E of Hammam on the coast of Arabia



can now be inferred only, from the loose dark nature of the soil, and a few small fragments of glass and copper, scattered here and there, so common a circumstance in most of the ancient towns on the Arabian coast

A walk of about 12 miles brought us on to *Nakhul Mayuk*, a very small date grove, at the foot of the lofty range of mountains a little to the eastward of *Wady Shulkhowi* Here we began to ascend, and having attained an elevation of about 1500 feet, we came to a spacious cave, in a part of which we found the adjoining characters, written exactly in the same manner with red paint as those at *Hammam* Immediately underneath is said to have been a well, more probably a small reservoir for water, from its position and the dryness of the soil It is now filled up with loose stones and rubbish The surrounding country, with the exception of one or two very small date groves, pressing out from some obscure corner of a valley, is one unvaried scene of barrenness and desolation We were told, however, that after a fall of rain, the scanty herbage which springs up was a sufficient inducement for the Bedouins to bring their flocks up to the hills, and during which time, they inhabited this and any other caves which they found convenient

Having slept here for the night, under the protection of a few Bedouins of the Menahil tribe, we started early the following morning, to return by the same dreary path which conducted us on our pilgrimage.

II —*Account of Súngie Ujong, one of the States in the interior of Malacca By Ensign* T J Newbold, *23rd Regt Madras Light Infantry.*

[Read at the Meeting of the 5th August]

[The following information, touching the population, customs, amount of produce, boundaries, &c of the states described, has been principally and necessarily derived from the natives themselves It is therefore offered with diffidence, but, at the same time, it is to observe here, that fully alive to the disadvantages of such sources, no labor has been spared by me to check and render by collation and patient investigation, such information now submitted, as correct and near the truth as possible.]

The states in the interior, formerly under general sway of the princes deputed from Menangkabowe, are under the immediate government of their respective *Panghálás* and *Súkús*. As each state has its peculiar features, it would seem advisable to give them a separate notice. By Malays, the precedence is ascribed to Súngie Ujong, the *Panghúlú* of which territory is addressed, by his brethren, by the

appellation of *Abang*, elder brother, the second place is given to Rumbowe, and the third to Johole Srimenánti, whose claims still remain unsettled, aspires to the fourth place

Boundaries —Súngie Ujong is situated towards the source of the right branch of the Lingie river It is bounded to the north by Jellabú, to the south, by part of Rumbowe and the Lingie river, to the east, by Srimenánti, and to the west, by Salangore Its boundaries with Jellabú are said to be Búkit Tángoh and Dhúlúkáru bander Barangan, with Rumbowe, Búkit A'ngin, part of the right branch of the Lingie river, and Parentian Tingih, with Srimenánti, part of Teráchi and the Páro stream · and with Salangore or Calang, by the river Lángkat, Kobak Kámbang, and Tongal Sejága

Population —The population in 1832, was estimated at 3,200 Malays, principally Menangkabowes, and 400 Chinese employed in the mines Many of the latter have since fled to Malacca, in consequence of the disturbances in 1833 The principal villages are Lingie, (the residence of the *Dattu Múda*, Kátas,) Pantei, (the residence of the *Panghúlú*,) Jíboi, Sála, Linsoin, Durian, Tanjong, Rassah, Kopaiyong, Rantou, Síliou, and Jirrah The Teráchi territory, a portion of which appertained to Súngie Ujong, now claims independance

Trade —The trade of Súngie Ujong is principally in tin, which is got at Sála, Sa Máraboh, Battu Lobong, Kayu Arra, and Timiong. Thence it is brought down to Lingie, and landed at Pankálangs, Cúndang, Durian, and Mangis It is here deposited in ware houses, and generally bartered for rice, opium, salt, tobacco, cloths, oil, and shells for making lime, brought up by boats, from ½ to 1½ coyans burthen, which cannot easily ascend higher than this part of the river.

The tin is conveyed by Malay coolies, by land, from the mines, as far as Jíbói, a village estimated at 30 miles from Lingie, and thence to Lingie, by small boats, down the river.

From the following extracts from treaties made by the Dutch, it would appear that they did not neglect to avail themselves of this source to increase the revenue of Malacca.

Article I of a treaty concluded by the Dutch Governor W. Boelan in Council, with the chiefs of Rumbowe and Calang, dated Malacca, 24th January, 1760

"The tin being the produce of Lingie, Rumbowe, and Calang, without any exception, will be delivered to the Company at 38 drs. a bhar of 3 piculs, and this price will always continue, without its ever being enhanced, it will be in the power of the Company to seize and confiscate, and to appropriate for their use, all tin which might be

discovered to have been fraudulently exported from the places above-mentioned."

A profit equal to about 18,000 Spanish dollars is supposed to have accrued to the Dutch annually from this monopoly, which so rigid were they in enforcing, that we find it stipulated in the same treaty, "that no boats or vessels, to whomsoever they may belong, shall be allowed to pass the Company's settlement at Lingie without touching, in order that a search may be made in such boats or vessels for tin, any person attempting to evade these rules, will be liable to have their boats, and the tin which may be found in them, confiscated and sold, and the proceeds appropriated for the use of the Company and the said chiefs" Also, that "no boats or vessels of any description whatever be permitted to proceed from the north to south, or passing from the latter to the former part, or passing the straits of Malacca, without being provided with a pass, on pain of being seized"

During the British Government at Malacca, from 1795 to 1818, the trade fell into the hands of private individuals, principally Dutch and Chinese merchants residing at Malacca In 1819, the Dutch resumed the monopoly, as we find from the 7th article of a treaty, dated Naning, the 5th day of June, 1819, between the Supreme Government of Netherlands India and Raja ALI, the *Panghúlú* and *Ampát Súkú* of Rumbowe, which runs thus "Raja ALÍ, the *Panghúlú* and *Ampát Súká* of Rumbowe, must give up to Government all the tin from Lingie, Súngie Ujong, Rumbowe, and any place under their authority, without reservation The Government binds itself to pay 40 Spanish dollars per bhar of 300 catties, or 370 lbs, &c"

On the resumption of Malacca by the English, in 1825, the tin trade relapsed into the hands of the private merchants

Miners—In 1828, the number of Chinese miners amounted to nearly 1000 men, who were regularly divided into nine *Kongsis* or companies, each under its respective *Tao-kae*. They were chiefly of that singular fraternity, the *Tian Tay Huay*, or Triad Society, whose mysterious oaths and secret laws appear to be not very dissimilar from those which bound the Carbonari of Modern Europe. Jealousy of their fast increasing power and numbers, or some alleged offence, but more probably the treasure amassed by this brotherhood, (whose property was in common,) led in 1828, to their massacre by the Malays

In 1830, the mines were again worked by about 400 Chinese, who went up, at the inducement of some Malacca merchants, and continued there until the late disturbances in 1833, when many of them returned to Malacca. The mines at present are but partially worked, and very

little of the tin passes down the river, in consequence of the feud existing between the Rumbowe chiefs and those of Súngie Ujong and Lingie.

The Malays and Chinese employed in the mines were liberally paid. The rate of their wages will shew the difference of value set upon the services of the two classes,—a Chinese being paid at the rate of 5 to 8 dollars per mensem, and a Malay from 3 to 5 only.

From day-break to 7 A. M., they are employed in clearing the mines from the water which accumulates during the night. From 7 to 8, they rest and breakfast At 8, the process of digging out the earth and ore is commenced At 11, they go to dinner, and return to work again about 1 P M.

At 5, their labours cease for the day. No work is done at the periods of new and full moon

Like their Cornish brethren, the Malay miners are very superstitious. They believe in the existence of a spirit *(Kummang)*, who watches over the mines, and whose wrath they are particularly careful not to provoke by work or deed They have "wise men," or *Puwángs*, who pretend to be able to ascertain the most favorable spots for sinking a mine, by various spells and charms, these may be compared with the charlatanic wielders of the *virgula divinitoria* in our own "enlightened country"

Previous to a description of the mines, a short outline of the principal geological features of the peninsula, as far as present imperfect information extends, may not wholly be out of place

The southern part of the Malayan peninsula and Banca assimilate in geological formation Dr Horsfield, in his observations on the mineralogical constitution of Banca, observes, that "the direction of the island being from north-west to south-west, it follows not only the direction of Sumatra and the Malayan peninsula, but the large chain of Asiatic mountains, one of the many branches of which terminates in Ceylon, while another traversing Arracan, Pegu, the Malayan peninsula, and probably Sumatra, sends off an inferior range through Banca and Billiton, where it may be considered to disappear"

This chain of mountains may be considered as the termination of one of those beams or pillars of lofty hills, spoken of by M. de Guignes, in his work on the Huns, as supporting the stupendous edifice, to which he compares the elevated regions of Tartary, comprehending the lofty ranges of *Imaus* and *Caucasus*, and the dome of which is represented as one prodigious mountain, to which the Chinese give the epithet of *celestial*, down the steeps of which numerous broad and rapid rivers pour their waters.

The Malayan range, as far as has been hitherto explored, is of primitive formation, principally grey stanniferous granite.

In the gold countries of Tringánu, Pahang, Gominchi, and Mount Óphir, rocks and crystals of quartz are met with. At the southern extremity, and in some parts of Salangore, porphyry occurs

The islands in the neighbourhood of Malacca, and those off the eastern extremity of the Salangore coast, consist principally of granite and laterite with sienite.

According to Dr WARD, "The small hills in the neighbourhood of Malacca are formed of a conglomerate, the base of which is clay iron stone, containing imbedded portions of felspar, in a state of decomposition (having all the properties of yellow ochre), and small grains of quartz and iron glance, scattered through its substance.

"The specific gravity of the rock is 2 536, when recently dug, it is soft, can be easily cut, and readily stains the fingers, but after exposure to the air for some time, it acquires such a degree of hardness as to be broken with difficulty: and its durability is shewn by the present state of the ancient buildings, which have stood unimpaired for nearly 300 years

"In its dry state, it is porous, from the destruction of the ochreous particles by moisture and exposure to the air, resembling old lava in its external appearance

"In all its properties, it agrees exactly with the rock common on the Malabar Coast, and described by Dr BUCHANAN under the name of laterite"

The mountains at Penang are also "composed of fine grey granite, and all the smaller eminences are of the same material" "Some of the small hills near the coast are partly formed of the laterite already described when speaking of Malacca, and Saddle island, at the south-western angle of Penang, is apparently entirely composed of the same ingredient"

At the Carimons, hornstone is found. Mr MARTIN states, the aspect of the Island of Singapore, (situate on the southern extremity of the peninsula, in Lat. 1° 17′ 22″ north, and Long 103° 51′ 5″ east,) to be "low and level, with an extensive chain of saline and fresh water marshes, in several parts covered with lofty timber and luxuriant vegetation, here and there low rounded sand-hills interspersed with spots of level ground, formed of a ferruginous clay, with a sandy substratum. The principal rock is red sandstone, which changes in some parts to a breccia or conglomerate, containing large fragments and crystals of quartz. The whole contiguous group of isles, about thirty in number, as well as Singapore, are apparently of a submarine

origin, and their evulsion probably is of no very distant date" It may be added, that bouldered pieces of primitive trap are found on the shores of Singapore, though none has hitherto been seen in *situ*.

The range of mountains on the peninsula, as it approaches the equator, diminishes in height The highest of the Rumbowe and Johor ranges, (with the exception of Mount Ophir,) not exceeding, probably, 3000 feet, while many of those to the north of Kedah are said to be upwards of 6000

Mount Ophir, a detached mountain, between 30 and 40 miles to the eastward of Malacca, I calculated roughly (by means of the thermometer and boiling water) to be 5693 feet above the level of the sea, its summit is granite Gold dust and crystals of quartz are found in considerable quantities around its base*.

From information hitherto collected, and inquiries made among the natives, it would not appear that any volcanoes exist in the interior, though the circumstance of numerous hot-springs, scattered over the face of the country, and other indications, sufficiently testify the presence of subterraneous fires. Severe shocks of earthquakes have been felt from time to time, but whether caused by violent eruptions from any of the volcanoes on the opposite coast of Sumatra, or by under-ground explosions there, or in the peninsula itself, is uncertain.

There are hot-springs in the vicinity of Malacca; at Ayerpánnas, and also near Sabáng, and at Lúndi in the Naning territory I have visited the two former places, and found the temperature of the water at noon of the springs at Ayerpánnas, to be 120° Fahrenheit, and at 6 A. M, 113½°

The temperature of the hot-springs at Sabáng was found at 6 A M. to be 110° Fahrenheit The variation in the former instance is accounted for by the different temperatures of atmosphere at the time of taking the heat. The heat of the springs in both cases, I found to exceed that of the atmosphere by an average of 35° Fahrenheit, in several comparative trials.

At the wells near Sabáng, when the bulb of the thermometer was pushed into the soft vegetable mould at the bottom of the spring, the mercury rose to 130°.

The springs at both places are situated in swampy flats, environed by small hills They average from 1 to 2½ feet in depth, and are discernible from a distance by the steam and odour that escapes. The water is of a pale bluish green tinge, from the bottom bubbles of air (probably sulphuretted hydrogen) ever and anon find their way to the surface, where they burst

* See J. A. S. vol ii. page 497.

Dr. WARD analysed a portion of the water from the springs at Ayerpánnas, and found, that on slow evaporation in a sand-bath, 1000 grains of the water left a residuum of eight grains of saline matter, principally muriate of soda, with a slightly bitter taste, indicating the presence of sulphate of magnesia

The surface of the peninsula is covered generally by alluvial deposites, rich in ore of tin, and not unfrequently mixed with gold; over this lies a layer of vegetable mould, in which stones or pebbles are seldom found.

In the interior, the land is mountainous, but undulating towards its coasts, shaded by primæval forests, and stored with treasures to the botanist and naturalist, it is almost devoid of plains The strips of low ground lying in the hollows of the undulations are almost invariably swampy, and are converted into *Sawahs*, or wet rice-grounds, by the natives.

At various places along its western coast are low cliffs, if they may so be termed, of a reddish steatite

The banks of the most considerable rivers are generally low, swampy, and covered with mangrove, *Nipah*, *Nibong*, and other trees of the same nature

The bottom is for the most part of mud, except at short distances from the estuaries, where sand banks and coral reefs are often met with

The tin of the peninsula, and the eastern islands, (particularly those of Junk Ceylon, Lingga, and Banca, which may be styled the eastern Cassiterides,) is diffused over a great geographical extent

Mr CRAWFURD observes, that "tin, wherever found, has a limited geographical distribution, but where it does exist, it is always in great abundance The tin of the Indian Islands has, however, a much wider range of distribution than that of any other country, being found in considerable quantity from the 98° to the 107° of east longitude, and from the 8° north to 3° south latitude."

It has, however, been since stated by Mr ANDERSON, that tin has been found in considerable quantities much farther north, viz. in the interior of Tavoy, in latitude 12° 40′ north; the mines are situated at a place called Sakána, about four days' journey from the city of Tavoy.

It has been affirmed, that tin exists so high as 14° north, in Siam

The peninsula of the present day, although auriferous, appears not to deserve its appellation of "The Golden Chersonesus," so much as its neighbour, the Island of Sumatra, to which, by the way, there is a tradition, mentioned by the early Portuguese historians, that it was formerly united Sumatra, by some, has been supposed to be the

Taprobána of the ancient geographers, this Mr MARSDEN denies, ascribing rather the name to Ceylon, the *Serendib* of Muhammedan writers, and the *Lanca* of the Hindus, and affirms, that Sumatra was unknown to them, denouncing the descriptions given by STRABO, POMPONIUS, MELA, PLINY, and PTOLEMY, as obscure and contradictory.

Admitting the tradition to be based on truth, it might be conjectured, that the Peninsula and Sumatra, thus united, formed that tract of country known to the Greeks and Romans by the title of "*Aurea Chersonesus*" This might serve in some measure to explain why so extensive an island, and one so rich in gold and spices, the two great desiderata of ancient, and I may venture to surmise, modern days, should have escaped the notice of ancient geographers

The quantity of gold dust exported annually from the south-west coast of Sumatra and Achin alone, according to MARSDEN and HAMILTON, amounts to 26,400 oz The former states, that there are no fewer than twelve hundred gold mines in the dominions of Menangkabowe alone, a considerable portion of the produce of which (perhaps one-half) never comes into the hands of Europeans

The gold of the peninsula, on a rough estimate, amounts to 19,800 oz annually It is chiefly got at Ulú Pahang, Tringánu, Calántan, Johole, Gominchi, and Jeleye, Reccan, Battang, Moring, and other places at the foot of Mount Ophir

A small quantity of iron is found in the interior of Quedah, in the peninsula, and also in Sumatra Siam and Billiton produce this metal in tolerable abundance

I do not find that silver is produced in any part of the peninsula, although Perak, from its name, which signifies silver, and which is conjectured by MARSDEN to have been the Αργυσα of PTOLEMY, might have been supposed to have derived its appellation from the presence of this metal

The tin produced annually in the peninsula, including the adjacent Island of Junk Ceylon, is estimated at 34,600 peculs.

According to CRAWFURD, the tin of Banca, produce of 1817, amounted to 35,000 peculs, or 2,083½ tons.

Tin Mines —The mines are generally excavated on the swampy flats at the base of hills of primitive formation They average from six to twenty feet in depth, following the streams of ore *(Húlúr bíjí)*, which will sometimes run in a horizontal direction to the distance of three miles, according to the nature of the ground. These excavations are termed *Lombongan*. The streams vary in diameter from six inches to eighteen and twenty, and consist of a quantity of small heavy granulated portions of a dark hue, and shining with a metallic

lustre, intermixed with a glittering white sand The excavations made by the Malays, are more superficial than those dug by the Chinese, as they are too lazy to work the streams, which lie deep

The strata under which the ore is found are commonly, 1st, a black vegetable mould, 2nd, red clay, 3rd, white clay, with white pebbles, apparently decomposed quartz, and 4th, a bed of shining white sand, called *Passír bijí* Under the ore lies a stratum of steatite, called *Nápal*, or a hard bed of decomposed rock. The native term for the tin ore is *Bíji tímah*, literally seeds of tin, when melted, it has the name of *Tímah masak* Crystals of quartz and fragments of micaceous schist are sometimes found among the alluvial earth thrown out.

The soil is carried out by the miners in baskets, suspended at the extremities of a stout elastic bambú or *penága*, which passes across the shoulders The men are divided into two parties, which work in regular succession, one entering the shaft with emptied baskets, while the other makes its egress, with the filled ones At Ulu Pondoi, in Naning, and at Jerram Kambing, I am informed, the mines are natural caverns in the rock The Malays and *Jacoons* collect the ore by the light of dammer torches

The ore is taken to a stream, conducted by artificial channels, lined with the bark of trees, to the vicinity of the mines, and stirred about with an iron rake, or a *choncole*. The water carries off the sand, small pebbles, and earth, leaving the ore and large stones at the bottom, which are afterwards separated by a riddle and the hand. The ore, thus cleared of extraneous substances, is deposited in the *koppos*, to await the process of smelting

Smelting or Melanchúr.—The smeltings are carried on at stated periods, twice or thrice a year, according to the quantity of ore collected, and always at night, to avoid the great heat.

The ore and charcoal, (of the *Kompas*, *Kamoui*, or other hard woods,) are gradually heaped up, in alternate layers, in a rude furnace of clay, called a *Bullowe*, with an aperture below, to allow the escape of the fused metal. The fire is urged, and the whole mass brought into a glow by a sort of leathern bellows called *Hambúsan*, and sometimes by ruder ones, constructed like an air-pump, and made from the hollowed trunk of a strait tree, with a piston, headed by thick folds of paper These are called *Kalúbongs*.

The Malays for the most part content themselves with the *Tropong*, which is merely a hollow bambú converted into a sort of blow-pipe, and worked by the mouth.

As the heat increases, the melted metal is received into a hole dug in the ground, called the *Telága*, or reservoir, and thence, with the assistance of iron ladles, poured into the moulds.

The tin now assumes the shape of the ingots of commerce, of which there are two kinds common in Súngie Ujong, viz the *Támpang* and *Kepping* or *Bangka* The former weighs from half a catty to two catties, and the latter, from fifty to sixty catties, one catty is equal to one pound and three-quarters

The *Tampang* is generally used by the Malays

In the furnaces used by the Chinese, 800 *lbs* of metal may be produced during the course of a night Those of the Malays seldom produce more than one-sixth of this quantity.

From 100 parts of the ore, it is calculated, from 65 to 77 of pure metal are produced The ore of Banca yields 58 That of Junk Ceylon, according to an assay made by Mr Blake, 64½

The water is drained from the mines, if shallow, by means of a channel, leading into a neighbouring stream, but if deep, the *Putáram Ayer* is had recourse to This hydraulic machine is, I believe, of Chinese invention The Rev Mr Tomlin, a zealous missionary, gives the following description of it

"The apparatus is simple, consisting of a common water wheel, a circular wooden chain about 40 feet in circumference, and a long square box, or trough, through which it runs in ascending The wheel and chain, I think, revolve on a common axis, so that the motion of the former necessarily puts the latter into action The chain consists of square wooden floats, a foot distant from each other, and strung as it were upon a continuous flexible axis, having a moveable joint between each pair

"As the float-boards of the chain successively enter the lower part of the box or trough, (immersed in water,) a portion of water is constantly forced up by each, and discharged at the top. At one of the mines we were much struck with the simple but efficient mode of its application. There were three distinct planes or terraces rising above each other On the middle one was the wheel, the lower was the pit of the mine, from the higher a stream of water fell and turned the wheel, which, putting the whole machine into motion, brought up another stream from the pit, these two streams, from above and below, uniting on the middle plane, run off in a sluice, by which the ore was washed"

Regarding the smelting of tin, in a recent number of Dr Lardner's Cabinet Cyclopædia, (No 54, pp 21 and 22,) are the following remarks on the advantages of pit coal over charcoal "Authorities are not agreed as to the time when pit coal first began to be substituted in the reverberatory smelting houses (of Cornwall) for wood or charcoal, though this is generally supposed to have been about 1680.

" In the smelting of this (tin), as of other metals, the application of this fuel has been productive of immense advantages, and such is the perfection to which our metallurgic operations have been carried since the economical introduction of this cheap and plentiful fuel, that the regulations of our custom-house alone prevented the carrying a scheme set on foot some years ago, for the importing of the tin ore from the eastern mines, for the purpose of being smelted in this country, and afterwards re-exported "

It would appear to have escaped the observation of the author of this article, that the enormous forests which thickly cover the whole of the Malayan peninsula, and the Island of Banca, under the very shade of which the miners may be said to work, furnish on the spot a cheaper and more economical fuel than the coal pits of Newcastle or Whitehaven do to the miners of Cornwall, at the sole expence of the labor of felling them, setting aside the loss of time, the expence of importation and exportation, and disinclination of the natives to such a scheme Moreover, according to Mr CRAWFURD, the cost of producing a cwt of Banca tin is but 22*s* 8*d*, whereas that of Cornwall amounts to 64*s* 7*d* The cost of producing a cwt of the metal in Súngie Ujong is estimated by an intelligent native at 23*s* The immense natural obstacles in Cornwall only to be surmounted by the most powerful steam engines, and the unremitting application of all the means human ingenuity can devise, together with the high price of labor, are, however, the principal causes in the enhancement of the cost of production in England

The time perhaps is not far distant when like ingenuity and similar means will be applied to the unlocking of the hitherto partially developed resources of the East

According to the best native information, the annual produce of the peninsula, before the late disturbances in the tin countries, was as follows.

Places	*Peculs.*
Súngie Ujong,	7,000
Perak,	7,500
Quedah,	600
Junk Ceylon,	1,500
Pungah,	1,500
Salangore, Calang, and Langkat,	2,000
Lúkút,	1,600
States in the interior of Malacca,	900
Pahang,	1,000
Kemaman and Tringano,	7,000
Calantan,	3,000
Patani,	1,000
	34,600

The discovery of tin in the peninsula cannot be traced, but it is assuredly of ancient date. Part of Perak is said to be the *Temála*, or land of tin, of Ptolemy, and *Cálang*, (a name signifying tin in Malay,) to be the *Malaiou Colon* of the same author, and the *Malaya-Culam* of the Hindus

The tin mines of Banca are of modern origin, being accidentally discovered, Mr. Marsden tells us, in 1710, by the burning of a house, the trade of the peninsula suffered considerably in consequence

According to Mr Crawfurd, (as before stated,) the tin of Banca, produce of 1817, amounted to 35,000 peculs, or 2083½ tons, equal to half the produce of England But under the management of the Dutch, I am informed, it now scarcely produces half that quantity

The price of Banca tin is from 16 to 16½ dollars per pecul = 133⅓ lbs, and of Straits tin, (chiefly from the peninsula,) from 14½ to 15. British block tin, in 1832, was selling at £3 12*s* 6*d* per cwt

In consequence of a supposed adulteration of Straits' tin, some specimens of ingots of this metal, rejected at Canton, were sent from Singapore to be assayed at Calcutta in 1831 This was done at the Calcutta assay office, which pronounced the specimens to be of good quality, and perfectly good in a mercantile sense "Great Britain, (according to Dr Lardner's work already quoted,) notwithstanding the productiveness of her own mines, imports upwards of 700 tons per annum of oriental, or, as it is more commonly called, Banca tin, from the name of one of the Malay islands, where it is chiefly obtained The Malay countries are reckoned the richest depositaries of this metal in the world, and from them, China, Hindostan, and many European markets are chiefly supplied England exports annually about 2,000 tons of tin, including 400 or 500 tons of that received from abroad." Her produce varies from 3 to upwards of 4000 tons annually

Revenue —Besides the *Kapála dágang*, and other sources of revenue previously mentioned, as enjoyed in common by the *Panghúlú Delantye* of the interior states, the *Panghúlú* or *Klána* of Súngie Ujong, and the *Rája adhi Rája* have the privilege of purchasing, at every smelting, from each *bongsal*, three *bhars*, equal to nine peculs, or nine hundred catties of tin, at six dollars per *bhar* less than the market price, and exact a duty of six dollars a month for each mine dug on their own lands

The *Dattu Múda* of Lingie levies also a dollar per *bhar*, on tin passing down the river

The *Kapála dágang* is a sort of poll tax on slaves imported into

* See Gleanings in Science, Vol. III.

the interior, from four to six dollars per head, they are generally *Battaks* from the vicinity of Battu Bára, on the opposite coast of Sumatra, and average twenty annually They fetch a price from 20 to 60 dollars each, according to age, condition, and sex, a higher value being set on the females

In addition to these imposts, the chiefs of Súngie Ujong formerly enjoyed the division of a premium paid annually by the Chinese and other merchants of Malacca for the tin monopoly, amounting, it is said, to 2500 dollars, 1000 of which went to the *Dattu Múda*, and 100 each to the three elders of Lingie, 800 to the *Klána* of Súngie Ujong, and the remaining 400 to the *Raja adhi Rája*.

The deputed Menangkabowe prince, it is affirmed by the Rumbowe people, had the right of levying a duty, at Sempong, on the Lingie river, of two dollars per *bhar*, on tin passing that settlement from Súngie Ujong, which was afterwards given up as a subsistence to their *Iang de pertúan Múdas* In consequence of the disavowal of this claim by the Súngie Ujong and Lingie chiefs, and other causes too long for detail, a war ensued in 1833, and a consequent blockade of the river by the *Iang de pertúan Múda*, SAYED SAABAN, at Sempong, still existing, and by which the trade of Súngie Ujong has suffered very materially

Government —Súngie Ujong was ruled, under the *Iang de pertúan Besar*, by a *Panghúlú*, three *Súkús*, and a *Raja adhi Raja* The *Panghúlu*, as has been already remarked, owes his title, *Klána Putra*, to one of the kings of Johor. He now refuses to acknowledge the control of the *Iang de pertúan Besár*.

BANDAHÁRA SEKUDAI is supposed to be the first chief invested with this title, and regarding his origin, a long tradition was related to me by the present *Raja adhi Rája*, the abstract of which amounts to this, viz "In ancient times, one of the princesses of Súngie Ujong having had the presumption to laugh at the naked state of a *Batin* of the Jacoons, incurred his resentment, and was forcibly compelled to follow him through thicket and brake, until moved with compassion, this *sans culotte maître de danse* broke the spell and married her.

"The offspring of this sylvan union is said to be SEKUDAI: from whom descend the *Panghúlús* of Súngie Ujong"

In all popular traditions of rude nations, there is more or less of truth to be gathered, and in absence of written and other historical evidence, such testimony ought not to be entirely neglected, and set aside as valueless, though frequently ridiculous, and mingled up with matter known to be incredible and void of truth. We need not instance here the works of the early poets of Greece and Romę.

It is certain, that to this day, in Súngie Ujong, Johole, and Jompole, the twelve *Batins*, or chiefs of the savage tribes, have a considerable share in the election of the *Panghúlús* of these states, though there is not now apparent any permanent mark of connexion, either social or religious, between the Malays and these aborigines

As *Káfirs* and infidels they are despised by the Malays, but superstitiously dreaded Converts are made to *Islam*, but slavery, as far as my observation extends, is their lot

A few years ago, the late *Panghúlú* of Súngie Ujong, *Klána* Leher, died, leaving two nephews, Kawal and Bhair It is an ancient custom prevailing in the interior, and, I believe, generally throughout Malayan nations, that when a chief dies, his successor must be elected on the spot, and previous to the interment of the corpse, (which is not, unfrequently, protracted through the observance of this usage to a considerable length of time,) otherwise the election does not hold good*.

The following are the traditional lines, or *Serápa*, in which this custom has been handed down in Súngie Ujong

سرا ما	*Serápa.*
عمرن فند يق لعكهن فنجع	Amar-nia pendék langkah-nia panjang
سده سمڤي كهند ق الله	Súdah Sampei Kahándak Allah
هند ق بر قبور دتانه ميره	Hándak berqabúr ditannah mérah
سهاري هيلع سهاري برتانم	Sa-hári hílang, Sa-hári bertánnam,
سهاري بر تمبوه سهاري فليهرا	Sa-hári ber-tamboh, Sa-hári palihará.

Short has been his life, though long his stride!
When the will of God has arrived,
The grave shall be dug in the red earth
In one-day lost, in one-day planted,
In one-day sprung up, in one-day cherished

Now it happened that Kawal was absent at the time of *Panghúlú* Leher's death. The three *Súkús* and one of the twelve *Batins* took advantage of Bhair's being on the spot, elected him, and buried the body of the deceased chief. Against this proceeding, the *Rája adhí Rája*, and the remainder of the elective body, the eleven *Batins*, protested, a war ensued, which terminated in 1828, pretty much as it began Kawal, however, by virtue of the suffrages of eleven out of the twelve *Batins*, and by the support of the *Rája adhí Rája*, is generally considered the legitimate chief.

* In consequence of this custom, the present Sultan of Johor's younger brother was elected during the absence of the elder brother, whose claims were subsequently acknowledged by the British.

He resides at Pantoi, a village on the left bank of the Lingie river, about 40 miles from the village of Lingie I had an interview with him at the latter place in 1833

His features are regular and pleasing, but their expression conveys an idea of indecision and imbecility, probably increased by the immoderate use of opium, to which he was formerly much addicted, the whole tenor of his conversation and manner evinced plainly how completely he was in the leading strings of his adviser, the wily KAÁTAS, the *Dattu Múda* of Lingie, who accompanied him

His dress manifested a disposition to finery, consisting of a gaudy red *báju*, or surcoat, flowered with yellow, a broad crimson sash thrown round his waist, suspending several weapons of Malayan fashion, a *Battik* handkerchief, with the bicornute tie, and a plaid silk *sárong*, resembling the tartan worn by the Highlanders, descending to his knees, underneath the plaid he wore short embroidered trowsers.

In the left-hand slash of his close vest of purple broad cloth, which was lined with light-green silk, and adorned with silk lace and small round buttons of gold filigree, lay a watch of an antique shape, to which were appended a gold chain and seals He wore his hair long, and it was very palpable to two of the five senses that he, like DEMOSTHENES in the composition of his orations, had not spared the oil in the arrangement of his tresses

Rája adhi Rája —Next to the *Panghúlú* ranks the *Rája adhí Rája* The jurisdiction of this officer is confined to the river, and its navigation. The office and title, as would appear from the inscription on the seal, were renewed or granted to his ancestors by MUHAMMED JALIL, Sultán of Johore, A H 1211. (A D 1796-7)

The present *Rája adhí Rája* is a young man, of an extremely prepossessing address and person

Súkús —There are only three *Súkús* in Súngie Ujong The *Raja adhí Rája* may be perhaps considered as occupying the place of a fourth *Súkú* in councils

The functions of the *Súkús* are similar to those already described, as possessed by the former *Ampat Súkú* of Naning*. Their titles are *Dattu Mantri Jumahad*, *Dattu Mendalika*, and *Dattu Maharája Inda* The tribes, of which they are the heads, are those of Sa Melongang, Bodoanda, and Tannah Dattar.

Lingie —The village of Lingie proper, in contradistinction to the settlement of Qualla Lingie, which is within the Company's territory, at the mouth of the river, is a dependency of Súngie Ujong.

It is situated high up the right branch of the river, and consisted,

* See page 298 of the present volume —ED.

in 1832, when I visited the place, of a straggling collection of upwards of 100 houses The *Pankálangs* of Pemátang, Passir, Cúndang, Dúrian, and Mángis, may be styled the wharfs of this little entrepôt, for the produce of the Súngie Ujong mines, and the articles brought up for barter Many of the houses have been pillaged and burnt in the subsequent disturbances.

The establishment of Lingie is of recent date Between 50 and 60 years ago, six individuals, subjects of Rumbowe, (but originally from Rhio,) removed from Rumbowe to a place on the Malacca coast, between Tanjong Kling and Qualla Lingie, called Kubu Achi, (the fort of Achin,) where, according to local tradition, the Achinese erected a work during one of their expeditions against the Sultán of Malacca Be that as it may, they had commenced the clearing of the jungle, when one of their number was crushed on the spot by the fall of a tree

This his companions regarded as a supernatural prohibition to settling there, and quitting the place, passed up the river to the present spot, where, with the permission of the Súngie Ujong chief, they finally established themselves Their names were Haman, Mahmud, Jahiuddin, Lubbye, Juman, and Kádir Ali

Haman was appointed head of the little colony, by the title of *Dattu Múda*, and his four companions, as elders Of these only one now survives Mahmud, who is a hale old man of 70

Haman was succeeded by his son-in-law the present *Dattu Múda* Mahomed Aátas, more commonly called Kaátas, and the three deceased elders, by Háji Cásim, Háji Muhammed, and Inchi Salihuddin This last chief was killed in the disturbances at the close of 1833

Kaátas, the leading character in Súngie Ujong, is a bony, muscular personage in the prime of life, tall in stature for a Malay, and of erect carriage.

His features are harsh and decided, his dress plain and simple. In character, he is selfish, crafty, persevering, and gifted with some foresight, a quality by no means common among Malays

He possesses unbounded influence over the weak and sensual *Klána*, and it is said that his ambition extends to the undivided sway of Súngie Ujong, and the monopoly of the duties on tin The opposition of the Rumbowe chiefs, with whom he is at present at deadly feud, and the Malay popular antipathy to innovation and deviation from ancient usage, or as they term it, the "*Addat Zeman Dhúlú*," the "*Addat Dattu Nenek*," &c. will prove considerable obstacles in the attainment of his wishes.

KAÁTAS has, on various occasions, evinced an inimical disposition to the English government

The following are copies of the inscriptions on the seals of the present *Panghúlú* and *Raja adhí Raja* of Súngie Ujong, and of the *Dattu Múda* of Lingie

سنه ۱۲۳۹	سلطان	سلطان
محمد عطاس	محمد جليل منورنكن	محمد جليل منورنكن
انچيء بندر	كبسران ترجنجغ كعد داتوء	كبسران ترجنجغ كعد كلان
	مهراج درج دسوعى اوجغ	فترادنكرى سوغي اوجغ
	سنه ۱۲۱۱	سنه ۱۲۱۱
Seal of KAÁTAS.	Of the *Rája adhí Rája.*	Of the *Panghúlú*

From the dates and inscriptions on these seals, it would appear that the two first were originally granted, or more probably, renewed to their possessors, by Sultán MUHAMMED JALIL of Johor, in 1211 A H

The last is of still more modern date (1239), and merely bears the date, name, and assumed title *(Inchi Bander)* of KAÁTAS

III —*Journal of an attempted Ascent of the river Min, to visit the Tea Plantations of the Fuh-kin Province of China* By G J GORDON, *Esq Secretary Tea Committee*

May 6th —Anchored in the evening in the Min river, a short way below a narrow passage, guarded on each side by a fort, and hence named by Europeans, the Bogue, as resembling the entrance to the inner river of Canton We immediately hoisted out our boat, and prepared every thing for setting out, as soon as the return of the flood, which we expected would be about midnight, would enable us to do so. We determined on trying the western branch of the Min, as laid down in DU HALDE's Map of the province of Fuh-kín We took with us one copy of a petition, for permission to import rice, on the same footing of exemption from charges as is granted at Canton, and grounded upon the unusual drought of the regular season for planting rice Another duplicate we left with Captain McKAY of the "Governor Findlay," to be presented by him to any Mandarin who might come on board to urge the departure of the vessel from the river As the subject of the petition would require reference to Pekin, we calculated, that sufficient time would thus be gained to enable us to accomplish our object The copy in our own possession would be resorted to only in case of our being intercepted The delay in its delivery might be attributed to the altered appearance of

the country in consequence of some rain having already fallen, which made it doubtful whether the prospects of the season were so bad as to render the present a favorable occasion for such an application on our part, founded as it was on the assumption that the country was threatened with famine Captain McKay was requested to be in no hurry about presenting his copy, but to let all persons understand that he had come with such a petition

May 7th At 1 A M we left the ship with a fair wind and flood-tide. We were 14 persons in all, namely, Mr Gutzlaff, Mr Stevens, and myself, the Gunner of the "Findlay," a native of Trieste, a tindal, eight lascars of various nations, Bengal, Goa, Muscat, Macao, and Malayan Islands, and my Portuguese servant, a native of Bombay. Having studied such charts of the river as we possessed, we resolved on turning to the left as soon as we came to the entrance of a river called in them the Chang: its position corresponding with that of the rejunction of the right branch of the Min, as laid down in the Jesuit's Map Mr Stevens kept the look out at the head of the boat, and the Gunner steered, while the tindal sounded The night was fortunately clear, and by 4 o'clock, we struck off into the western river. This soon widened into a very broad channel, which a little further on seemed to branch into two That to the left-hand appeared full of shoals, and low sedgy islands, and we accordingly followed that to the right, which appeared still broad and clear It was on our right, besides, that we had to look for the main stream of the Min We had not proceeded far before the expanded sheet of water we were proceeding by gradually diminished in width, sending off several small branches in various directions, until at last it dwindled away into a narrow nullah, over which there was a stone bridge Relying on the strength with which the tide flowed up this creek, as proof that it must lead into some other channel, we struck our masts, and passed the bridge, going on, till we saw reason to believe the reports of the villagers, that there was really no passage into the Min by that course We accordingly came to, that our people might cook, intending to retrace our way with the assistance of the ebb Unfortunately, however, the depth decreased so rapidly, that before we had proceeded far, we were fairly brought up, and obliged to wait for the return of the flood Mr Stevens and Mr. Gutzlaff went ashore to reconnoitre, and satisfied themselves that the branch we had avoided in the morning, was the proper one to be pursued, in which opinion they were confirmed by the villagers We were unable to get a pilot To all inquiries as to our destination we replied that we wished to go to Min-Tsing, the next Hín town above Fuhchow.

We bought a few supplies, but had a copper basin stolen while we were aground. The flood began to make at 5½ P M, but it was 8½ before we got into the right channel. For two hours nothing could be more flattering than appearances, but suddenly the water began to shoal, and we were obliged to come to anchor

At day light of the 8th, we found ourselves surrounded by sand-banks in all directions, without any visible channel by which we might advance when the tide should rise One man agreed to pilot us into the Min for five dollars, and then left us A second agreed for two, taking one dollar in advance, and after accompanying us a short way, made off At ½ past 9 A M, Mr GUTZLAFF landed with the view of engaging some one to show us the way, when all at once a Kwanfou with a gilt knob said he would be happy to be of any use to us, and as the wind was contrary, would assist by towing us with his own boat. Mr GUTZLAFF accepted his offer The man appeared to be of the rank of a subaltern officer, such a proffer coming from such a quarter was of a very ambiguous character He was probably sent to watch our motions, and took this method of defeating our object. We had, however, no alternative, our attempts to engage a pilot had failed, and we had found from experience, that without some guide, we could not advance. Besides, we could cast off from our professed friend as soon as we should see grounds for alarm In fact, he led us back towards the mouth of the Chang river, and when he came close to a small hill fort, which we had observed the preceding morning, went ashore We cast off immediately, and went into the Fuh-chow branch, where, after running up a little way, we anchored for the night A cold drizzling rain made our situation not very comfortable, and what was more, we found ourselves about two in the morning in danger of canting over into deep water, from the fall of the tide, leaving the boat's keel deeply fixed in the mud of a sloping bank

May 9th —The tide favoring us at 7 A M, we got under weigh, followed by a Government boat, and with a rattling breeze, soon reached Fuh-chow-foo When near the bridge, we anchored, and struck our masts, and then shot through one of the openings with great ease. There were about a score of soldiers drawn up in arms at the bridge, and after we had passed through, four boats with soldiers put off after us. Mr GUTZLAFF told the people on board, that if they came alongside when we came to an anchor, we would communicate with them. They continued to follow us at a little distance. Soon afterwards we came in sight of a second bridge, when we feared we should have been obliged to dismast, on approaching it, however, we

perceived that the road-way, connecting the piers, had fallen in at two places, through both of which boats under sail were able to pass. We selected what appeared to be the widest, and got safely through, but Mr STEVENS observed, that the stones, which had fallen in, were but a trifle below the surface, and narrowed the passage so as to leave very little to spare beyond the width of our boat. We were now so far ahead of the war boats, that a fisherman ventured alongside to sell us fish At ½ past 11 A. M, we came to anchor, that the people might refresh themselves, and the tide having turned against us, we remained at anchor till 4 in the evening The war boats, in the mean time, came up, and a civil enquiry was brought from one of them as to what nation we belonged, whither we were bound, and with what object Mr GUTZLAFF, in reply, stated, that we wished to ascend the river, to see tea plants growing, to talk with tea merchants, and to ramble amongst the hills. No objection was made, but that the river was rapid and dangerous When we weighed, however, these war boats weighed also, and after we had come to at night, they came up and took their station near us. We weighed early on the morning of the 10th, the drizzling rain still continuing, and the thermometer at 57°, but having no boats in sight, to serve for our guidance, we thought it better to come to anchor again, and let the people have breakfast, as we weighed, the war boats weighed, and when we again anchored, they too came to an anchor. Before we set out the second time, two other war boats came up, which made at first, as if they intended to run foul of us, but showed no other marks of opposition, and we pushed on I now reminded my friends of my uniform declaration, that I would not attempt to force my way if any actual resistance was offered, and that I even questioned the expediency of proceeding at all, if we were to be continually under the eyes of the government officers However, as we greatly outsailed them, and might possibly wear out their vigilance, we resolved to persevere As we advanced, we found that none of the boats going up the river would answer our questions, the people sometimes clapping their hands on their mouths, or answering, that they durst not give us any information. After having got a long way ahead of the war-boats, however, we found the people communicative and friendly. We were told of several rapids on the Min river, which could not be passed without a very strong wind, and of other places where the current was not only violent, but the stream too shallow to float our boat We had in fact already reached a place, where the stream, swollen by the hill torrents, that conveyed the rain, which had fallen during the last 30 hours, was so rapid, that with a light

breeze, and our oars, we were unable to make any way against it, and were obliged to come to an anchor accordingly

The war-boats, by dint of pulling and tracking, surmounted the obstacle, and did not come to till they were about a mile or upwards ahead of us We found the people very kind and friendly, but they were soon checked by the appearance of a Kwanfoo, who came to us in a little Sampan, with some loose papers in his hand. He addressed himself to me, but I answered with truth and nonchalance, that I did not understand him · Mr GUTZLAFF, who stood by, recommended, that little notice should be taken of him, that all communications with the mandarins should be avoided, if possible, and that the papers which he offered, not being in the form of a letter, or otherwise in an official shape, should not be received The officer then asked some of the people who were on shore near our boat, whether they knew if any of us could speak Chinese. Pointing to Mr GUTZLAFF, they said he knew a few words, enough to enable him to ask for fowls, eggs, and ducks, which he wanted to buy, and that he spoke about nothing else. One of them was saying something about his distribution of books, but the Kwanfoo was at that moment laughing heartily at the odd appearance of one of our men, and the remark about the books, which was immediately checked by one of the by-standers, passed unnoticed He still persevered, rather vociferously, in requiring us to receive his papers, when he was motioned to be off Our Gunner gave the boat a hearty shove with his foot, which decided the movement of the envoy. After it was dark, the people of the village brought us bambús for pulling, with other supplies The lull of the wind continuing during the night, we distinctly heard much beating of gongs, firing of arms, and cheering in the quarter where the war boats lay, but at day-break of the 11th, we thought we saw them under weigh in advance. A rather suspicious-looking man came to the shore, with a paper which he wished to deliver We showed no inclination to receive it, and in attempting to throw it into the boat, tied to a piece of stick, it fell into the water, and was lost. Soon after, a simple looking peasant boy showed another piece of paper, which, from its rude appearance, I thought not likely to have come from the authorities, and therefore received and handed it to Mr. GUTZLAFF It was an intimation, that multitudes of officers, with an army of 9000 men, were drawn up close by, and that there were many tens of thousands of soldiers further on. This was the first decided threat we had of resistance, and it was so grossly exaggerated, that we attached no other importance to it, than that it intimated decided objection to our further advance.

We had already fully resolved on not having recourse to force, unless it became necessary to resort to it, in order to extricate ourselves, if an attempt were made not merely to drive us back, but to seize our persons, and we now proposed to use every exertion to get as far as possible ahead of the war-boats, engage chairs for our conveyance by some inland route, and send back the boat under the charge of the Gunner.

The day being for the first time clear, we were engaged all the morning in baling out and washing the boat, and in cleaning our weapons, much rusted by the wet weather we had hitherto experienced. A breeze springing up a little after 11 o'clock, we hastened to avail ourselves of it, and all our arms were stowed away as speedily as possible.

We had gone on some way ploughing the stream in beautiful style when all at once shot began to fall about us. We deliberated for a moment what was to be done. We believed that retreat would not save us from further firing, as long as we were within its reach, if we would take the practice of the troops at the Bogue as an example of the general rule of the Chinese in such cases, and if we could get out of the reach of their shot by running ahead, we might have time for negociating. On turning a point, however, the wind failed us, and our enemies pursuing us, the firing became more hot and dangerous than ever. My next idea was to run the boat ashore, and attack the Chinese, but the river was very narrow, and on the opposite bank they had erected a mud breast-work, from which they could fire on us with their small cannon, with full effect, and it would be exceedingly difficult to get at our assailants, on account of the steepness of the bank where they now stood. After receiving a good peppering, we put about, but as I anticipated, they continued to fire upon us and my servant, with one of the lascars, was wounded, though both slightly, and all of the party had narrow escapes from death. The strength of the current soon carried us beyond their fire, and we were in a fair way of reaching Fuh-chow before day-break of the 12th, when we unfortunately missed our way some time after the top of high-water, at 2 o'clock A. M. At day-break, we found ourselves on high ground, 60 yards from the nearest point of the river. We had nothing for it, therefore, but to wait the return of the tide. Numbers of men, women, and children came about us to sell geese, fowls, and fish. Some amongst the crowd we recognised, as having been amongst those we had seen while attempting the western branch of the river. They noticed the marks of the balls that had passed through the gunwale, or stuck in the sides of

the boat, but this did not seem to make any difference in the friendliness of their demeanour. While we were at breakfast, two boats came up filled with soldiers, who were immediately landed, and one party marched towards our boat, while another was drawn up as a reserve The officer, who commanded the advance, with several of his men, scrambled into the boat. They were desired by Mr GUTZLAFF to retire, but not complying, our people were desired to turn them out, which they did accordingly I collared their officer, and was on the point of tripping up his heels, when he threw himself down, and Mr GUTZLAFF begging me to leave him to him, I desisted from further violence, though the loud and insolent manner of the man made forbearance not very agreeable. Mr GUTZLAFF then commenced rating the fellow in such animated language, that he became apparently thunderstruck, having no apology to offer for the rudeness and violence with which he came to execute his commission, which he said was merely to inquire who we were, and what we wanted, and to desire us to be off Mr. GUTZLAFF informed him that we came to present a petition to the Viceroy, but not having met with an accredited officer, its delivery had been postponed, that we had taken an excursion on the river, in order to see the tea plant, that we had proceeded openly, and avowed our intention without being told, that so innocent an object could never draw on us treatment such as no civilized government would offer to innocent strangers. He then harangued with great energy and effect, on the base, treacherous, cowardly, and barbarous conduct we had experienced on the preceding day, and on our own forbearance in not returning the fire, showing him, that we had plenty of arms, which we had taken for our defence against robbers, and assuring him, that we were not afraid to risk our lives against numbers: but had not come with the intention of making war on the government of the country, and would therefore wait to see whether that government would afford us redress by punishing those villains who had thus without any provocation attempted to take our lives, before having recourse to other means. If justice should be withheld by the provincial government, the case might go before the Emperor, and if punishment were not then inflicted on the guilty, the affair was not likely to end there. Mr. GUTZLAFF's eloquence, with the display of our fire-arms, left the Kwanfoo without a word to say for himself, or for his country. He acknowledged, that we had been shamefully treated, but that he was not of the party, and could not be implicated in their guilt, and promised that we should experience nothing but civility from himself. He received our petition, which he handed to one of

his people to take to his boat, and ordered off the rest of his men He agreed to assist us in getting off from the field where we lay, and to tow us on our way as far as Mingan—a tower and fort, a short way below the place, where the western branch rejoins the Fuh chow river. We asked him if there was no way of going down without passing under the bridge of Fuh-chow He said, there was, and that he would probably take us by that route. We got afloat about 11 A M, and two or three hours afterwards, recognised our position to be that which we had abandoned in despair four days before Had we remained where we lay on the 8th, till the flood had made, it would have carried us into the main river, and we should have had one or two days start of the war-boats, or perhaps entirely escaped their observation The Kwanfoo continued on board, except when relieved by an inferior officer from the towing boat, intending, as we presume, that we should appear to be his prisoners In the afternoon, the wind became very strong, and the fleet ran in towards a large village, where they proposed anchoring for the day Finding, however, that the bottom was stony, and that there was already too little water for our boat, we refused to remain, and were preparing to set sail, when the officer, who had brought us on, earnestly requested to be taken into our boat again We received him on board, and were again taken in tow, the other war boats accompanying. At dusk, they wished to take us to another large village, but we pointed out a more sheltered spot, and they took us there accordingly. The officers still remaining on board, Mr GUTZLAFF was requested to desire them to withdraw, which they did, and as they had been uniformly civil since morning, I sent each of them a pair of blue printed cotton handkerchiefs It was settled that we should again get under-weigh with the morning's ebb, and that after reaching Mingan, we should pursue our way to the ship, without further attendance. At 10 o'clock P M, I was surprised by a letter from Captain McKAY, of that day's date, he stated that he had been importuned in the most abject manner, to recal us, as orders had been issued to drive us out, which could not be carried into effect. He concluded that we must by that time have got so far on our way, that before we could be overtaken, we must have accomplished our object. At 1 A. M. of the 13th, we got under-weigh, towed as before, but escorted by a numerous fleet of war junks, one of which carried three lanterns, and the others, one each, on their poops, as all these vessels had to make short tacks in a narrow channel, the sight was rather fine; and when we reached Mingan, a number of rockets were discharged, which had a very grand effect. We had not permitted any Chinese officer to

come on board our boat when we started, but contrary to stipulation, they now again insisted on coming, while we showed a determined resolution to resist on consulting their commander, they were directed to let us go freely. We lost our way however in the darkness of the night, and were assisted by a war-boat in the morning, in recovering it. As we approached the right channel, we found several war junks stationed as a guard Three or four of them accompanied us for some time, but gradually dropped off The towing junk too took occasion to make us over to a large open boat, from which we soon afterwards cast off On passing the forts at the Bogue, we were honored with a salute of three guns from each, as well as from some war junks above, and others below, the forts At 2 P M, we got on board the "Findlay." In pursuance of our declared intention, I prepared a petition to the Viceroy, praying for inquiry into the conduct of our assailants on the 11th, and the infliction of adequate punishment upon them for their unjustifiable attempt on our lives. Mr GUTZLAFF was good enough to put my petition into Chinese form, and have it ready for delivery next morning, in expectation, that as had been the practice hitherto, some officer of rank might come on board None having arrived, however, I resolved to go on board the admiral's junk, and deliver my petition there, explaining its object to that officer Mr. GUTZLAFF and Mr STEVENS accompanied me, we found in the cabin two messengers from the Viceroy, both of them assistant magistrates wearing colorless crystal knobs, two vice-admirals, Tsung-ping knan, one of them, the naval commander-in-chief of this station, one colonel of the army, Yen-keih, and one Pa-tseang, or subaltern. Having handed to them the petition, one of the messengers wanted to open it; but on being requested to deliver it to the Viceroy, began to enquire what were its contents. Before coming to that subject Mr. GUTZLAFF adverted generally to our character as foreign merchants, and our wish to import rice The Chinese assured us that it was from no unwillingness on their parts, that we were not allowed to trade, but that they were obliged to act under the prohibitory orders of the Emperor. As to the importation of rice, the Fú-Tseang at first affected to misunderstand us, as if our application were for permission to export rice to our own country from Fuh-kín One of the messengers told us, that the Viceroy would give us no answer, when Mr. GUTZLATF quoted some instances of official replies from head quarters, that made him waive this objection.

Having shewn them the impracticability of efficiently excluding foreign trade from so long a line of coast, Mr. GUTZLAFF urged very

strongly the expediency of rendering legitimate what was now conducted with all the defiance of the laws, and other evils attendant on a smuggling trade already so apparent in Canton Both messengers assented very readily to the soundness of the advice, adding arguments of their own in a very conciliatory strain, and regretting much that it was against the imperial orders Mr Gutzlaff dwelt particularly on the facility which Fuh chow possessed for the tea trade this they fully admitted, but again the Emperor having confined the trade to Canton, there was really no remedy, and it was quite in vain attempting to open the trade at this port Mr Gutzlaff then adverted to the murderous attack upon us on the 11th, of this they at first alleged total ignorance, and then ascribed the attack to the treachery of the common natives. Mr. Gutzlaff however told them, that it was their officers and soldiers who acted to the best of their ability the part of treacherous and cowardly murderers, while the poor peasantry had always conducted themselves towards us with the greatest kindness. That we were now come with a petition, calling for redress by the punishment of those assassins, the granting of which was the only means of preventing retaliation, the lives of peaceful people having been brought into the most imminent danger, which violence justified violence in return, even if we were to take a life for each of our lives that had been so endangered. Here all concurred in reprobating such conduct as we had experienced, and in assuring us, that we should meet with no such molestation from them, trying to put as good a construction as possible on the past Mr Gutzlaff repeatedly requested them to allow the people to bring us provisions, but to this they turned a deaf ear As we rose up to come away, the messenger of the Viceroy, to whom I had handed the petition, wished to return it, but I refused to receive it back He said he could report what we had said, but durst not deliver the petition Mr Gutzlaff, however, succeeded in getting him to promise its delivery, by reminding him, that he had been sent hither on our account, and it would be strange, if after all, we should be obliged to carry our remonstrance ourselves to Fuh-chow. This hint had the desired effect On the afternoon of the 15th, a polite note was sent to the admiral's junk, requesting a supply of provisions, to be procured for us, as the people were prohibited from bringing any thing to the ship The boat brought back a remnant of a shoulder of pork, a dried cuttle-fish, and four pieces of sugar-cane, these were immediately returned. Mr Gutzlaff was good enough to go on board by another boat, accompanied by Captain McKay and Mr. Stevens, to require an explanation of this piece of rudeness, and to inform them

that if in two days I got no answer to my petition for redress, the consequences would not be imputable to me, but to their government They at first denied that any thing had been sent; but finding this would not do, they alleged, that the pork and fish were intended for the boatmen, and the sugar-cane for the little lad that steered the boat. No indication of such appropriation was made when the things were put into the boat, so that the excuse was evidently an afterthought. Finding that another admiral, who had arrived in the forenoon, was of the party, Mr GUTZLAFF again expatiated on the atrocity with which we had been treated No attempt at defending it was offered The messenger of the Viceroy said, that the petition had been sent, but he was unable to say, how soon we might expect an answer. At this second meeting, Mr. GUTZLAFF pointed out the freedom with which Chinese subjects were allowed to follow any honest avocation they chose at our settlements, and claimed, on the principles of reciprocity, the accordance of similar privileges in return.

On the 16th, Mr GUTZLAFF, having found some passages of Chinese law particularly applicable to our assailants, went in the evening to point them out to the mandarins, and for their further consideration, copied them out in their presence, and left the extracts with them. Applications for provisions, and promises to supply them, were renewed On the 17th, a boat arrived from Fuh-chow, at 8 A M, and was received by the junks with a salute A little after, a boat came alongside, and made off again with all expedition, after leaving an open note, stating that the orders of the Viceroy had arrived, and that we ought to go on board the admiral to receive them Mr GUTZLAFF wrote in reply, that the person who was charged with the communication of the order was in duty bound to deliver it, and that we expected he would bring it accordingly This was sent by the ship's boat, which soon after returned with a note, stating that since we were afraid to go on board the admiral's junk, they had made out a copy of the order, not choosing to send the original by the young man whom we had sent in charge of the boat. The half hour that our boat was detained was entirely occupied in framing and copying this note The paper which they pretended to have copied in that time was a roll nearly six feet in length, which could not have been written in the fair style which it exhibited by the most expert penman in less than a couple of hours. We afterwards compared it with the original, and found that it was written in the same hand, and was in every respect, except in the sealing, a fac-simile of the original. Our second petition accompanied this copy. The intention was no

doubt to cheat us out of the original—an object of some value in the eyes of the Chinese diplomatists, who are always anxious to withhold authenticated papers, for fear of furnishing documents that may some day be brought forward in evidence against themselves—a use to which no unsealed documents can be applied, according to Chinese law and practice. The possession of this copy enabled us to prepare a final communication to the Viceroy, and in order to secure the delivery into our hands of the original, the ship was dropt up with the flood abreast of the junk fleet, and her broadside brought to bear upon them. There were 19 vessels in all on the spot, but all the smaller ones immediately got under-weigh, and passed within the forts. When we went on board the admiral of the station, we learned that the orders of the Viceroy were addressed to the admiral of Haetan, who was on board another junk. He and the envoys from Fuhchow were sent for, but it was some time before they made their appearance Our host, in the mean time, appearing very uneasy and dispirited, we asked what was meant by saying that we were afraid of going on board his ship Some of us had been there on each day since our return It was obvious, that fear of retaliation had prevented him from renewing his visits since we came back, but, if we thought it right to retaliate it, we should not have imitated the treacherous and cowardly conduct of his countrymen, but openly brought our ship to fight the whole of theirs, and he must be perfectly aware, that as she then lay she could sink his whole fleet, and destroy every one on board But this was not our object The government had implicated itself in the business by inventing such a string of notorious falsehoods in defence of the conduct of its officers, and we should leave it to our Government to obtain for us the redress which theirs refused to our simple and respectful application —The original letter of the Viceroy and his colleagues having been at last produced and taken possession of by me, I returned the copy sent in the morning. We were promised our supply of provisions as soon as we got underweigh. The final reply to the Viceroy, along with my second petition, under a fresh cover, were now placed in the hands of the principal envoy, who pressed me hard to receive them back, and even followed me out, as if he intended to throw them after me into the boat Judging apparently that this would be of no avail, he kept them till evening, and then sent a small fishing boat with them to the ship. The fisherman, however, being warned off, carried them back, and we saw no more of them. On the 18th and 19th, we gradually dropped down to the outer bay. No provisions were ever sent us.

IV —*Selected Specimens of the Sub-Himálayan Fossils in the Dádupur Collection.* *By Lieut* W. E. Baker, *Engineers.*

The discovery of the existence of fossil organic remains, in the vicinity of the village of *Ráyawála*, and in the *Markanda* pass, has led to the examination of the tract of tertiary hills lying between the river *Jamna* and *Pinjor*. From different points on this line, specimens have been obtained, and the fact of its richness in such relics fully established.

The greater number of the specimens in the *Dádupur* collection, are from the hills lying between the *Markanda* pass and *Pinjor* The calcareous sand-stone prevalent in these formations has usually appeared as the matrix containing them, an exception, however, occurs in the neighbourhood of *Dádgarh*, where the matrix, instead of sand-stone, is a red indurated marl, in which not only the remains of Mammalia and Reptilia are found, but those of Mollusca also. The native collector reports them to occur together, and along with the shells, produced fragments of bones and vertebræ of Saurians. Having as yet had no opportunity of visiting the place, I can neither corroborate his statement, nor particularise the site of the deposit. The shells appear to belong to fresh water species, they are not abundant, and are generally in a bad state of preservation The red marl is with difficulty disengaged from the specimens, any attempt to separate the shell from the matrix, being usually at the expence of the epidermis, and too frequently at that of the valves themselves Nos. 45, 46, 47, 48, (Pl XLVIII ½ size,) shew the usual state of the specimens, the varieties are few in number, but the determination of fossil species requires so much experience and nice discrimination, that no apology will be requisite to excuse silence on this interesting point A selection, which is to be placed at your disposal, will, it is hoped, afford the means of determining the question The univalves bear a small proportion only to the bivalves, being in the ratio of 1 to 100, it must, however, be remarked, that the quantity hitherto collected being small, the above proportion might be materially affected by an inconsiderable increase to the number of specimens*.

* We have ventured to preface Lieut. Baker's enumeration of the principal Sub-Himálayan fossils of the *Dádupur* collection by the above extract from a paper previously drawn up by his friend and coadjutor Lieut. Durand, on the remains of the hippopotamus of the same field, for the sake of pointing out the locality in the extensive range of lower hills, whence they have been exhumed. Lieut. Durand's beautiful drawings, being, from their size, better adapted to the pages of the Researches, will, in the first instance, receive publication in

The accompanying plates contain drawings of the natural size of a few of the Sub-Himálayan fossils in the Dádúpúr collection, viz. selected specimens of the remains of the horse, the hog, ruminants and carnivora.

To save a lengthened description, and the use of technical terms, with which I am not familiar, as well as for the sake of ready comparison, I have accompanied my drawings of several fossils by those of the corresponding bones of their existing analogues.

I may here remark, that the greater part of the fossil, as well as of the recent bones, were sketched with the assistance of the Camera Lucida, and allowing for the slight errors incidental to that instrument, I believe them to be correct "plans and elevations," if I may use the term, of what they are intended to represent.

The fossil horse—Pl XLV figs 1 to 19

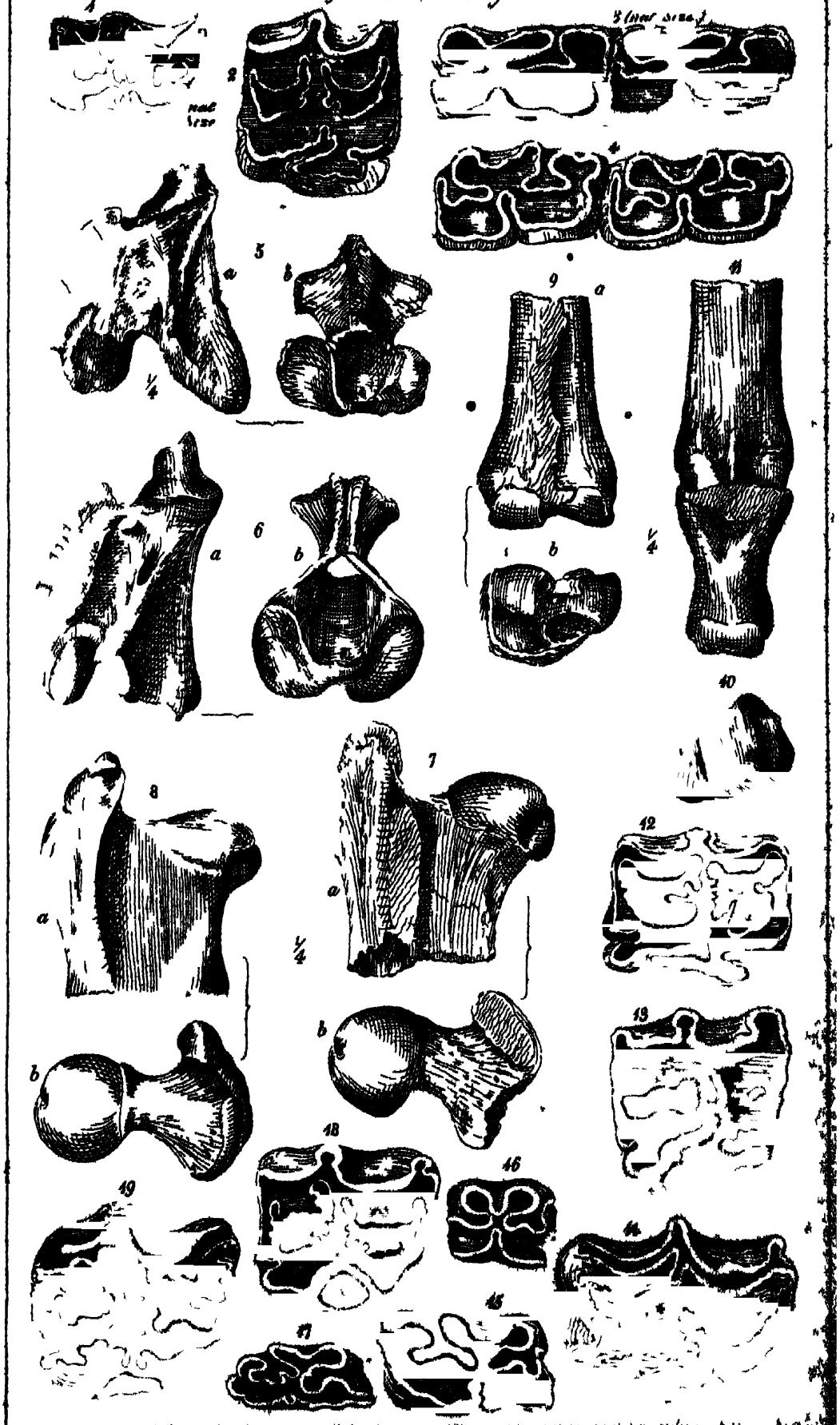
The remains of this animal, now in our collection, are amongst the latest of our acquisitions, and as many of them present a marked difference from the fossil horse, described by CUVIER, which appears not to have been distinguishable from the existing species, I have been induced to figure nearly all our recognized bones of this genus

Fig 1 represents a fragment of a left molar of the upper jaw, though a mutilated specimen, it clearly shews the same complicated flexures of the crown, compared with fig 2, which is the fourth left upper molar of the existing horse Fig 3, shews the fourth and fifth molars of the left lower jaw of the fossil, and fig 4, the same teeth of

the volume now in the press, along with the highly interesting description of the *Sivatherium*, by Messrs FALCONER and CAUTLEY

The shells of the red marl, alluded to above, are *perfectly identical*, both in form and state of preservation, with those we received with the collection of Ava fossils from Colonel BURNEY. No drawing is given of these shells in Professor BUCKLAND's account of the Burmese Mastodon, and he remarks, that "neither the insulated concretions from Ava, nor those adhering to the bones, contain traces of any kind of shells," but on noticing the peculiarities of the tertiary strata in the neighbourhood, he says, "among the most remarkable of these strata is a fresh-water deposit of blue and marly clay, containing abundantly shells that belong exclusively to a large and thick species of *Cyrena*" This attribution coincides with figs 45, 46, of our plate —and further, "also a dark-coloured slaty lime-stone, containing shells which Mr SOWERBY has identified with some that occur in our London clay. There is also, from the hills opposite Prome, granular yellow sandy lime-stone, containing fragments of marine shells, and much resembling the calcaire grossièr of the environs of Paris." This I presume alludes to the spiral univalve, fig. 44, which I find precisely among Colonel BURNEY's specimens, and which much resembles the principal shell of the calcaire grossièr.—ED.

Fossil Bones of the Sub-Himalayas Horse



the recent horse: between these, the difference, though obvious, is less remarkable than in the upper teeth.

The fossil axis, fig. 5, differs from the recent fig 6, in its greater proportional breadth, and the greater expansion of its lower articulating surfaces, *a a*

The fossil femur, (fig. 7,) or rather its upper extremity, has a strong resemblance to the recent fig. 8, a slight difference only appearing in the form of the condyle, and the greater flatness in the fossil, of the space between the condyle and trochanter

In the lower extremity of the radius, (fig 9,) in the astragal, (fig 10,) in the metacarpal and phalanx, (fig 11,) I am unable to detect any distinctive difference from the corresponding parts in the recent horse.

To the above collection, I have since been enabled to add further drawings of the fossil teeth of the horse, to aid in determining whether it exhibit any difference from the existing species.

Figs. 12 to 18, are from specimens in the cabinets of Captain CAUTLEY, with whose permission I send them Fig 19, is from a tooth now belonging to Colonel COLVIN, and by him intended for presentation to the Asiatic Society, who will, I trust, excuse the liberty I have taken in drawing it, which I would not have done, had our own specimen (No 1 of my last sheet) been sufficiently perfect to stand for the type of the species found in the upper formation.

Figs 12, 13, 14, 15, 16, 17, are from the bed of the Jamna, between Agra and Allahabad

Fig 12, appears to be a right upper molar, perhaps the 3rd this very perfect specimen has a close resemblance to the teeth of the existing horse, but the flexures of its enamel are undoubtedly more complicated than those of the specimens of horse and ass, with which I have compared them The pillar, *a*, is also much longer, though the proportions of this part are doubtless affected by the degree of attrition to which the tooth has been subjected, as will be seen more clearly in figs. 13 and 14, of which,

Fig. 13, is from the right side of the upper jaw of, apparently, a very old animal, it may be observed, that the pillar, *a*, is very much enlarged

Fig. 14, is also from the right upper jaw. I suppose it to be a young tooth, of which the flexures of enamel have not completely burst through the original envelope, and have not been worn down to the usual form in this, as was to be expected, the pillar is small.

Fig 15, is the 2rd or 3rd molar of the jaw, right side.

Fig. 16, a fragment of a similar tooth.

Fig 17, probably the rear molar of the right lower jaw; these three present no remarkable difference from similar teeth of the recent horse

Fig. 18, is the beautiful specimen from the marl formation in the *Kálawála* pass, alluded to by Dr. Falconer, in his letter, read to the Society on the 14th January, 1835

Fig. 19, the 2nd or 3rd right upper molar from the upper or sand formation of the Sub-Himálayas: there is a slight difference between the flexures of enamel of this, and of the fragments, fig. 1, of my own collection, but not more than is perceptible between the several molars of the present horse

From the above specimens, (if I may be allowed to generalize from so few,) it would appear, that we have three varieties of upper molars of the fossil horse,

1st. From the *lower marl formation, (*Kálawála* pass,) fig. 18, This tooth is distinguished from the recent, and from the *Jamna* varieties, by the pillar, *a*, being detached from the rim of enamel encircling the rest of the tooth, (as was observed by Dr. Falconer,) and from the 2nd (undermentioned) variety, by the comparative simplicity of the flexures

2nd. From the sand formation, fig 19

In this variety also, the pillar is detached, but more elongated, than in the 1st, the interior flexures are remarkably complicated.

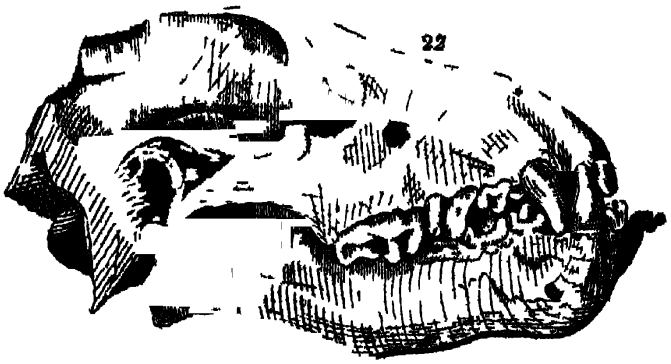
3rd. From the bed of the Jamna, between Agra and Allahabad In this the pillar forms a part of the exterior rim of enamel in shape it resembles that of the 2nd variety, but the interior flexures are more like those of the 1st. It appears doubtful, whether or not this last variety will be considered identical with the existing species.

Fossil hog—Pl. XLVI figs 20, 21

The specimen represented by fig. 20, is in its substance so soft and friable, that it was difficult, without destroying the fossil, to remove even so much of the matrix as enabled me to take the accompanying sketch. It must still remain in doubt, whether the exterior incisors be wanting, or whether they be only concealed under the sand-stone, covering the parts *a*, *a* I am myself inclined to the latter supposition from the close agreement in other respects of this fossil with the lower jaw of a wild sow, lately killed in the *Ráyawála* jungles, in which the molars appear to have been very much worn. The comparative sizes of the fossil, and the above-mentioned recent specimen, are 21 and 17,

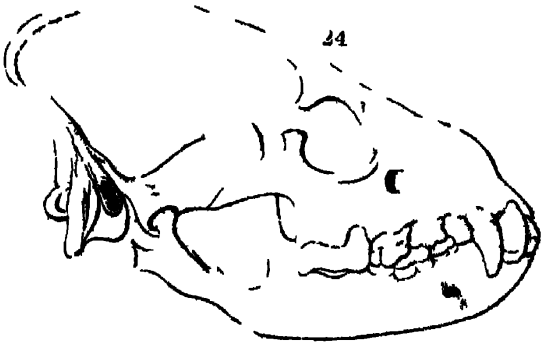
* An *upper* marl has also been met with, containing shells, and the teeth of crocodiles. See remarks in page 565.

Fossils of the Sub Himalayas - Dadupur Collection

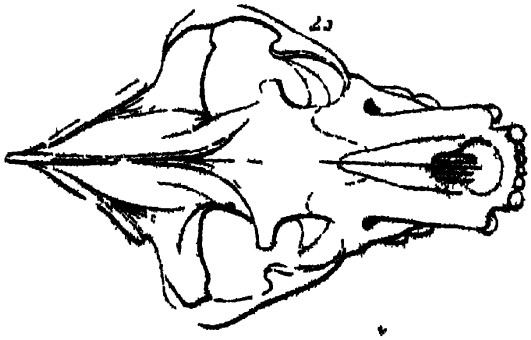


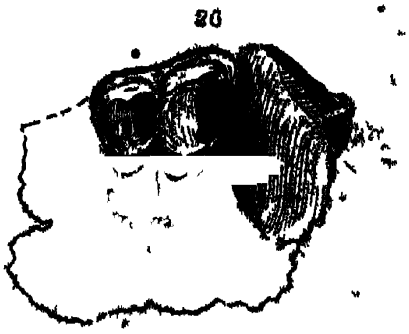
Hyæna fossil

fossil Hog



Hyæna recent





½ th larger than nature

Linear Dimensions - one fourth of the natural size

W E Baker del Hurrychunder

Fossil Bones of the Sub-Himalayas Dadupur Collection

Ruminants

all ¼ th the nat Size

W E Baker del. Haragovinda

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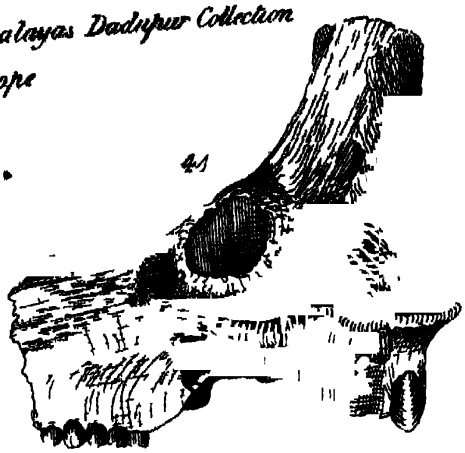
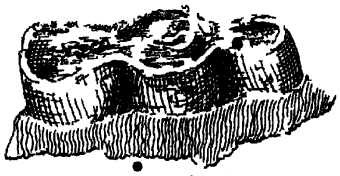
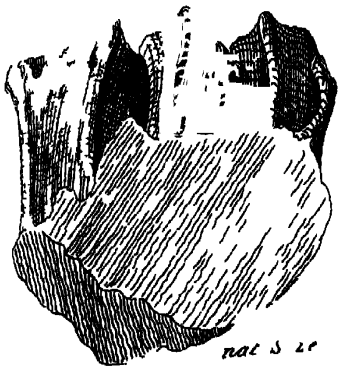
Fossil Bones of the Sub Himalayas Dadupur Collection

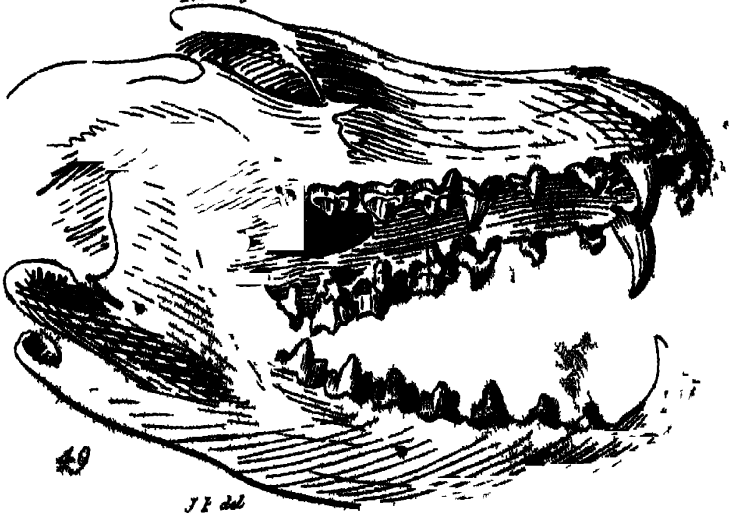
Antelope







Teeth of the Vandiemans I and Tiger



The upper part of the femur, fig. 21, must have belonged to a smaller animal, it is chiefly remarkable for the lowness of its trochanter major.

Carnivora —Pl. XLVI

Amongst our fossil remains of this family, the hyena is the most abundant. Of other genera, we have one fragment of a head, which even the assistance of CUVIER has not enabled us to name with certainty We have also a molar indubitably belonging to an animal of the genus canis

Of the hyena, there appear to be two varieties: figs. 22 and 23, may be considered the type of one, of the other I will say nothing, as the Society will shortly be in possession of specimens of it, now in the collection of Colonel COLVIN.

The skull represented by figs 22 and 23, is the most perfect fossil we have yet been so fortunate as to meet with It appears to have been enclosed in the stratum, with the lower jaw in position, but not quite closed The only injuries which it has sustained are the loss of its left zygomatic arch, a slight displacement of the half of the lower jaw, of which the canine tooth is broken off near its base, and the mutilation of the occiput, which is perhaps the greatest loss of all.

This skull must have belonged to a full-sized animal, as some of the molars are worn flat at the tops it is smaller then CUVIER's fossil hyena, and somewhat different, though having a much nearer resemblance to it than to the existing hyena of the country of which I have given the skull, figs 24 and 25, With reference to the latter skull, I have to remark, that it was brought from the lower hills in this neighbourhood, and said to belong to the *charakh* چرخ or hyena, it however wants the small first molar of the upper jaw; and in the disposition of the molar teeth of the same jaw, slightly differs from another less perfect skull of a hyena, with which it has been compared. Whether or not these differences may be attributable to age (for the individual was evidently a very old one), or to accident, I cannot determine

Fig 26, is the fifth, and part of the fourth left upper molar of a canine animal

Ruminantia—Pl XLVII. XLVIII.

Of this order we possess a great diversity of species, of which some individuals appear to have been of gigantic dimensions, as may be judged from the specimens which I have selected to illustrate this point.

Figs. 40, 41, and 42, are different views of a skull of an animal allied to the antelope, the length and narrowness of the face, the

height of the nose, and the peculiar setting on of the horns, are all more conspicuously exemplified in another specimen of a similar skull, which Colonel Colvin purposes presenting to the Asiatic Society. Our specimen, however, has the advantage of possessing the cranium and occiput entire

Fig 43, is the last molar of the left lower jaw of an antelope or goat

Fig. 27, a horn, perhaps of a similar animal

Fig 28, part of the frontal of a small stag

Figs 29 and 39, ditto antler ditto

Fig 44, milk molar of a stag

Fig 30, tibia of a stag or antelope

Fig 31, fragment of head of a femur of bos —This specimen, compared with the similar part of the domestic buffalo, is in size as 5 to 4

Fig 32, fragment of head of a bos —This has a general resemblance, as far as it goes, to the very perfect one offered to the Society by Mr. Dawe

Fig 33, lower extremity of the metacarpal of a ruminant compared with that of buffalo, as 83 to 45.

Fig 34, *a*, *b*, two views of the lower extremity of the femur of a bos, one-third longer than the longest of which I have met with a description in Cuvier, its width across the condyles is 6 2 inches

Figs 35 and 36, are two similar fragments of axis, which I have selected to show the diversity of size of our fossil ruminants to complete the comparison, I have added the corresponding bone of the small plough bullock of the country, fig 37.

Fig 38, is a lower extremity of a radius, compared with the corresponding bone of the bullock, as 18 to 7 5

It is not impossible that some of these large bones may hereafter be found to belong to Capt Cautley's Sivatherium*.

Seharanpur, July 9th, 1835.

* *Sivatherium* —The name given by Capt Cautley and Dr Falconer to one of the recently discovered fossil animals, of which their description has just been published in the Society's Researches We shall take an early opportunity of republishing the account of this important discovery, so fraught with interest to the geologist and the naturalist

It will be seen by the extract of a letter from Captain Cautley, read before the Society at the Meeting of the 4th November, and published with the present number, that this conjecture is completely confirmed, and that other animals, particularly the Anoplotherium of Cuvier, have been added to the growing catalogue of *Sewálik* fossils —Ed.

*V.—*List of Fossil Specimens from Bilwan, and from the Betwá, collected by Lieut* VICARY, *in December*, 1834

Right branch to the 13th tooth of the lower jaws of a crocodile, I believe the muggur *(magar)*, all the alveoli are empty, except the 7th, which contains a germ

The scapula, part of a rib, and another bone of the same animal: all found together within 300 yards of the *Bugowtí*, about a mile to the N W of the village of *Bilwan*, between *Mirzapur* and *Chunar*. they were bedded in clay, mixed with *kankar* and some shells like those of the river, the clay rests on sandstone, which was exposed in the bottoms of the water-courses.

A bone, found on the surface, at the same place

From the Betwá in Bundelkand, January, 1834

Bones of a bovine animal, found imbedded in cemented gravel, on the right bank of the *Betwá* river, about one mile east of *Jelálpur*, between *Kalpí* and *Keitah*

No 1.—Clay on which the gravel rests, and which forms the bed of the river on that side

No 2 —The cemented gravel in which I found the bones, at this place, it is about twenty feet in thickness. Half a mile nearer to *Jelálpur*, it decreases to two feet, and in some places, is very slightly cemented

No 3 —The bones some had fallen to the base of the gravel, and were lying on the surface, others were still firmly imbedded, and broke in the effort to get them out (I had not a hammer with me)

No. 4 —Stems or roots ? (Dendritical *kankar* perhaps,) above the gravel, in a light colored clay, of about four feet in thickness

No 5 —Plate *kankar*, alternating two or three times with the above clay, containing shells not differing from those of the river, and often perforated by the *roots* ?

a A thin seam, resting on sandstone in the *Sonar* river, at the waterfall near *Hatta*, containing shells (recent)

b A bone from the left bank above the same fall

c A bone from the *Byarmí* river

* This paper was accidentally mislaid, when the article on the Jamna fossils, of the last No was in the press It is referred to in page 502 of that paper, and is here printed both to illustrate the remarks there made, and to preserve the record of Lieut. VICARY's donation The *Mirzapur* site of fossils is new, and deserves further examination In regard to the theory of the Jamna fossils being derived from the *Betwá* river, Mr DEAN has pointed out to us that *Karim Khán* is 20 miles above the junction of that river —ED

VI.—*Note on Thylacinus Cynocephalus Extracted from the Osteological Section of the Catalogue of the Museum of the Asiatic Society By* J T Pearson, *Esq*

Class—Mammalia. *Order*—Carnassiers. *Fam* —Marsupiata *Gen.*—Thylacynus *Sp.*—Thylacynus Cynocephalus.
Van Diemen's Land Tiger.

A Skull

This specimen (Pl XLVIII fig 49) was taken from the skin of an animal called the Van Diemen's Land Tiger, presented to the Society by Dr J Henderson, and described in the 3rd vol. of the Gleanings in Science, by Dr J Grant.

It was before described in the 9th vol of the Transactions of the Linnæan Society, by Harris, and it is mentioned in the Synopsis of Mammalia of Griffith's Cuvier, under the name of Dasyurus Cynocephalus Mr Brooks, as it is there stated, thought it the type of a new genus, to be named *Paracyon* and M Temminck has since formed it into one, under the name of *Thylacynus* In all these, however, the dentition is incorrectly given In the Linnæan Transactions, and in the Gleanings in Science, the cheek teeth are represented as $\frac{6}{7}\frac{6}{7}$, and in the Synopsis of Griffith's, the dentary system of Dasyurus is attached to it, viz incisors $\frac{8}{8}$, canines, $\frac{1}{1}\frac{1}{1}$; cheek teeth, $\frac{6}{6}\frac{6}{6}$ So far as relates to the incisors and canines, Griffiths is probably correct, for, although some of the incisors are wanting in the present specimen, there are eight sockets above, and six below, the second on each side of the latter being situated apparently within the row of the other four, as happens to the middle incisors of Brooks' genus *Lycaon* The dentition of *Thylacynus* is therefore, incisors, $\frac{8}{8}$, canines, $\frac{1}{1}\frac{1}{1}$, cheek teeth, $\frac{7}{7}\frac{7}{7} = 46$, and omitting the incisors, some of which are wanting in the present specimen, the teeth may be described as follows

Superior maxilla—*canines* strong, large, and curved backward, with the points inclining rather inward, separated from the incisors by a deep, round fossa, or hollow, nearly half an inch in diameter, to receive the point of the opposing canine of the lower jaw. *Cheek teeth* gradually increasing in size to the last but one, which is the longest The three anterior ones are compressed, cuspid, with a heel at the posterior side, but little developed in the first, more so in the second, and largely in the third, where it is formed into almost a sharp tubercle. The fourth, fifth, and sixth cheek teeth irregularly triangular, with the most obtuse angle forward and outward, and the most acute, backward and outward The fourth tooth has a

tubercle at each anterior angle, the outer one having a point, forming a small heel before it, a larger and sharper central process, a very small additional point arising out of a concave surface between the central process and posterior angle, and a curved, sharp, cutting edge extending along the inner and posterior side of the tooth, from the central process to the posterior angle The fifth tooth is, in general appearance, similar to the fourth, but rather larger than it, with the central process longer in proportion, with only a rudiment of the small point of the concave surface, and the posterior and inner cutting edge larger and sharper The sixth tooth is the largest. the heel of the anterior tubercle is more strongly developed, and the outer and central processes are larger and sharper than in the other teeth, the posterior interior cutting edge is very sharp, and there is scarcely a trace of the additional point The seventh tooth is also triangular in its form, but with its longest axis placed cross-wise, with an obtuse anterior interior tubercle, another posterior one, and a third rather sharper than those in the centre, with a sharp elevated ridge extending across to the most acute angle at the outer side, uniting the central with a fourth tubercle at the outer angle

With regard to the placing of the teeth in the jaw the sockets of the four incisors on each side are close together, but between those of the two central incisors there is an interval of about $\frac{1}{10}$th of an inch, indicating a corresponding gap between the teeth. Between the incisors and canines there is the pit in the intermaxillary bones already mentioned The first molar is almost close to the canine of its side, the second molar is separated by an interval of $\frac{2}{10}$ths of an inch nearly, from the first, the third molar is rather more than $\frac{1}{10}$th of an inch from the second, and it adjoins the fourth, forming with it, the fifth and the sixth, a continuous series of four teeth, from which the seventh is separated by about $\frac{1}{10}$th of an inch

INFERIOR MAXILLA—*canines* strong, much curved, approximating at the base, then proceeding outward, with the points turned backward, and rather inward; placed close to the incisors, which appear jammed between them, and the points not going on the outside of the intermaxillary bones when the jaws are shut, but received into the fossa in those bones, between the upper incisor and canine teeth. *Cheek-teeth* gradually increasing in size to the third, than which the fourth is rather smaller, and again, from the fourth to the last, which is the largest of all first, second, and third, like those in the upper jaw. fourth, fifth, sixth, and seventh tricuspid, with an acute angular point in front, a very elevated sharp process, with cutting edges in the centre, and a tuberculous process behind. This last

process approaches to a grinding surface, with an acute margin at the outer and posterior sides, in the fourth, fifth, and sixth teeth, and it is of a rather round, tuberculous form, in the seventh tooth

The first molar in the under jaw is placed close to the canine tooth of its side, the second is about $\frac{1}{10}$ht of an inch from the first, the third rather more from the second, and there is another space between the third and fourth of about $\frac{1}{10}$th of an inch the four last teeth form a continuous row

The lower canines being received into pits in the intermaxillary bones, is somewhat like an approach to what takes place in some of the Saurian reptiles, and indeed, the whole view of the skull of Thylacynus Cynocephalus reminds the casual observer almost as much of a Saurian as of a Mammiferous animal

When presented to the Society, the stuffed specimen was, as it is said, in a bad state, and when the present Curator entered upon his office, there was, owing to no care having been taken of it, nothing to be done, but to take out the bones, to preserve them This, however, was so far fortunate, as it has led to the discovery of the real dental system

Mr Grant, who drew up the paper in the "Gleanings in Science," proposed the name of Lycocephalus for this species, apparently not aware that Harris had before named and described it His mistake as to the number of teeth arose from not having been able to open the mouth far enough to allow him to examine them properly, and Harris's specimen may have been an old one, and lost a tooth on each side The Society's specimen was of a middle age, rather young perhaps than otherwise the bones of the skull being well knit together, though not fixed by bony union

It is greatly to be wished, that some friend to the Society would present another specimen

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VII —*Analysis of Copper Ore from Nellore, with notice of the Copper Mines at Ajmír and Singhána* By James Prinsep, *Sec. &c.*

Through the kindness of Mr C. A Kerr, I have had a further opportunity of examining the produce of the Nellore copper mines, of which cabinet specimens were presented to the Asiatic Society two years ago*, before the formation of the "*Indian Copper Mining Company*" at Madras, for the purpose of turning to profit the mineral stores of this promising district.

* See Proceedings of the Asiatic Society, Feb. 1833, in vol. ii. p. 95.

From a pamphlet published at Madras, we learn that the copper mines in the Nellore and Cuddapah districts were discovered about 40 years ago, by Mr. BENJAMIN HAYNE, whose report to Government, inserted in his *Tracts on India*, gives the fullest and most satisfactory account of them. From this pamphlet, we glean the following particulars of the locality, and of the quality of the ore.

" The districts on the coast in which copper ores have been discovered are those of the Calastry and Vencatagherry zemindaries, and the Udygherry Jaghire, in the zillahs of Nellore and Duppaud, and other places in the ceded districts

" The principal mining places are at the distance of about 30 miles N W from Nellore, 30 miles from the sea, about the latitude of Rámapatam, and about 40 miles N. E from Cuddapah

" Several rivers run right through it on their way to the sea from the western hills, of which the Pillapeyroo, Vuppovagoo, and Manyroo form a junction not far from Guramanypenta, the principal mining place, and form a pretty large river, which is said to have a good deal of water throughout the year Its beds are very stony, which seems in the eyes of the natives the greatest objection against its being made navigable for boats it deserves therefore an accurate survey

" The general aspect of the country is barren, and uncomfortable in the extreme large trees are only found in and near the villages, and on the wide extended plains, on both sides of the river, nothing encounters the eye, but here and there a small thorny shrub The grass, which, in the rainy season, every where else carpets the country with a refreshing green, is here both scanty and of the poorest kind, a species of " aristida," which, as the name implies, is a compound of long beards or bristles This is the case in most mining countries, the surface of the soil contains in many places so much salt, that the inhabitants could make enough, if allowed to do so, for their own consumption

" To the eastward, the country is open, only here and there a few low hills are to be seen, but to the westward, there are ranges of hills, the nearest at the distance of about 10 miles Due west is one called Malla-coudah, from being the highest hill in the range It is said to abound with wood The Udygherry mountains are to the south-west, about 16 miles, and the highest in this part of the country the highest point I take to be about 3000 feet above the level of the low country I have seen myself, that plenty and large wood grows there, particularly between the valleys

" About 20 miles on the way to the sea, in the direction of Rámapatam, are extensive jungles, consisting of—1 Korra, *Panicum italicum, L* 2. Aruga, *Paspalum tomentacium, L* 3 Woolava, *Glycene tomentosa, L.*

" This country is, geologically speaking, of a primitive description, the general rock formation is a mica-slate, of different colors and consistence. It shews itself first in the low country, at the distance of about 15 miles east from the hills, it forms sloping mountains, which are often capped with horn-stone slate, which passes into sand-stone, and on the other hand, into jasper. The tabular summits and mural precipices of the Udygherry hills consist of the latter stone kind the layers or strata of the mica-slate occur in different positions, and inclination to the horizon, often in the low country forming a right angle with it, on and about the Udygherry hills, the strata appear in the utmost confusion, as if thrust by force out of their proper position. Traces of copper ores are often found

in this rock, and it is generally known to contain various metallic veins, as gold, silver, and copper

"Subordinate to the former is green-stone slate, in mighty layers, often as to appearance constituting the principal rock of a district for many miles This is the case about Guramanypenta and the other mining places The layers or stratification of the latter rock I have as yet always found in a horizontal position.

"The green-stone slate is often approaching to green-stone, it occurs then only obscurely slaty, has a jet black color, strong glossy lustre, foliated fracture, hard in a small degree, in this state it seems here barren of metals of any kind The real green-stone slate is of a bluish black color, with small white spots of decomposed felspar, half hard, and when exposed to the air, it crumbles soon to pieces, and takes a green color The rock is reckoned one of the richest '*mothers of ores*' of any in the world In it are found silver and copper in rich beds or layers, as is the case here; but never in veins, as in other formations*

"The layers of copper are of different thickness, and distances from each other the general run of the pieces of ore, constituting the layers, is two inches in thickness, but they have been found also of several feet The pieces are in general flat, as if compressed, and coated with ochre The vertical distance between the layers is 4 to 8 feet, and the horizontal is even more uncertain

"A corroded honey-combed quartz is found in great abundance in the green-stone slate, particularly along with the copper ore It appears often on the surface, in such places where the water has washed the earth away It looks then like indurated marl, which in other parts of the country is very common

"The rock † is covered with a red coarse gravel, which is the superficial soil of this part of the country In my opinion, this is formed from the decomposition of the green-stone slate, and its quartzoze and ferruginous contents, for copper ore is often found in it in considerable quantity, and in the same situation, as in the slate rock

"At Yerrapillay, in a new mine, which I opened, I found two layers of ore in it, at distances of four feet asunder

"The thickness of this stratum of gravel differs according to its situation, whether it is on a high or low ground I have found it from 4 to 6 feet, and more

"The copper ore which Dr THOMSON calls Anhydrous, the most common kind, is in flat pieces, externally, of a brown ochry color, internally, of a black iron color, which often passes into green, when moistened with water, it becomes almost immediately throughout green, in some places, it is bluish grey throughout Lustre, in some places, where it is black, semi-metallic, and in the bluish grey, metallic‡ The copper indeed

* One of my specimens from Nellore is abundantly curious and interesting It consists of distinct layers of the carbonate, alternating with black micaceous schist, or rather green-stone, affording exactly the appearance of gradual deposition from a liquid at this earliest period of geological formations The angle formed by the strata of this striated rock with the horizon is stated by Mr KERR to be about 45°.—J. P.

† See Dr HENZA's observations on veins of quartz pervading decomposed pegmatite, J A S iv, 421 —ED

‡ This description accords so completely with that of No 3, in the subjoined analysis, that I have no doubt Dr HAYNE has mistaken the sulphuret for Dr. THOMSON's ore.—J P.

is in an almost metallic state in it Fracture approaching to even fine grained streak, of the black, brighter metallic, powder, "*greenish*," not very hard, except the iron black and bluish grey part, which is with difficulty scratched by quartz, brittle, not particularly heavy. Specific gravity, 3 09. Some pieces are found of a nut brown color, and some with conchoidal fracture. The foreign admixtures are various, as white and green quartz, mica, iron ore; mountain blue and malachite are in some places found with it In other places, I suspect the admixture of silver For the analysis, I must refer to that of Dr THOMSON, in a paper laid before the Royal Society of London, which I was permitted to publish as an appendix to my "*Tracts on India*" I will only mention here, that on an average, he procured 50 per cent of pure copper In the dry way, or by simply smelting the ore, we have received the metal in *greater proportion*, which may be easily accounted for by the quantity of iron, which the ore contains, that cannot be separated, as when the analysis is carried on by acids and other re-agents"

Mr HAYNE seems to have been wrong in imagining, that the natives had only discovered these mines 50 or 60 years before (about 1750) Mr KERR, who has since visited the whole of the mining district, and examined all the formations, and the old works, with great care, states, that the former excavations are of prodigious magnitude, many of them occupying several hundred feet square, and having a depth of 50 or 60 feet The matrix rock and rubbish are now accumulated in these immense tanks, but on clearing them away, the mouths of the galleries extending into the rocks were discovered, blocks of the ore, (perhaps some that had been gathered previous to the discontinuance of working the mines from some political convulsion or oppression,) have been used to mend the village tank at *Guramanypenta*, and Mr KERR imagines, that any quantity of the richest ore* may be obtained at a trifling expence, and within 100 feet of the surface Extensive hills, formed of lumps of ferruginous slag, now covered with vegetation, point out the situation of the ancient smelting houses A piece of this slag (which was at first mistaken for a volcanic product) was analysed by myself It yielded but faint traces of copper, shewing that the native processes of extraction, however rude, were effectual in completely separating the metal But I must now proceed to observe upon the actual specimens of the ore submitted to my examination, purposely avoiding all allusion to the mercantile value of the mines, the estimates of the expence of working them, and the invitations to join in an association for this purpose—objects which are highly interesting to the community, connected with so laudable a measure for developing the natural riches of

* The "steel-grained, crystallized silvery ore, invariably found in green-stone slate, and partly imbedded in quartz, the richest ore met with," is doubtless No. 3, the sulphuret.—J. P.

the country; but which cannot with propriety be entered upon in a work devoted exclusively to literature and science.

The ores now presented to me are from three different localities. They differ considerably in quality one from the other, and all from the former ore, which Dr Thomson pronounced to be an anhydrous carbonate, new to mineralogy.

No 1 A parcel, weighing 90 lbs of roughly-picked and cleaned ore, has a quartzose matrix, in some parts colored green, or appearing so from the malachite beneath the transparent crystal It contains much iron, which, on solution in an acid, appears in the form of a yellow ochre Ten per cent of quartz was separated from this specimen on pounding it roughly, before setting it apart for analysis

No 2 A parcel of the same weight is labelled "*Bungeral Mettah,*" and is the species stated to be found in clustered nodules in the alluvium, of rounded exterior, as though they had been detached from their original site, and reburied here The ferruginous matrix of this ore, on solution, assumes the appearance of a dark-red oxide It is the same probably as that of Dr Thomson's specimen. The carbonate of copper runs through it in veins, but the mixture of sulphuret of iron and perhaps of copper with the oxide, gives the whole a dark arenaceous texture

No 3 The richest ore of the three is at the same time the most abundant, and promises to yield the safest return, as it runs in unbroken veins This ore is a combination of carbonate and sulphuret, the former intermixed with the latter, but readily distinguishable from it, as the sulphuret is crystallized, and has the grey metallic lustre of galena The specific gravity of this ore is 3 77, being intermediate between that of the carbonate, 3 2, and the sulphuret, 4 5

The analysis was conducted for the sake of expedition on separate parcels of 100 grains each, in lieu of attempting the separation of the ingredients from a single parcel Some variation may thus be induced from the irregularity of the ore, but, on the whole, the results ought to be more trust-worthy Thus the carbonic acid was estimated by the loss of weight on digesting 100 grains, finely pounded, in dilute nitric acid The water, (for none of these ores was found to be anhydrous,) by heating in a glass tube, removing the aqueous vapour by bibulous paper, and ascertaining the loss. As the ore generally lost its green colour by this operation, it is possible that a portion of carbonic acid was also driven off. Calcination in an open dish, in the muffle of an assay furnace, gave a loss, which was compounded of that of the carbonic acid and the water Calcination drives off the sulphur also, but the equivalent of oxygen, which replaces it, being of precisely

equal weight, this operation affords no test of the quantity of sulphur present —In fact, not expecting from Dr THOMSON's analysis, to find sulphur in the Nellore copper ore, I at first neglected the precautions necessary for its separation This was accordingly effected on other samples, by boiling in strong nitric acid, which, from its heat, caused part of the sulphur in a pure state to rise in fused globules to the surface while a portion, being oxygenated, was afterwards separated by precipitation with barytes

The quantity of copper was most conveniently estimated from the black oxide taken up from the calx by dilute nitric acid It was also obtained directly from other samples by reduction of the oxide with charcoal and borax —The iron and pyrites were deduced from the difference between the residue in the cold solution, and that from the hot dissolution in strong acid of another parcel, before calcination

Collecting together the results of the above operations, we have the following data, whence to deduce the composition of the three specimens

		No 1	*No* 2	*No* 3.
a	Loss of carbonic acid by digestion in dilute nitric acid, ...	12 0	14 6	7 0
b	Loss of water (and some carb acid ?) by heating without air in a glass tube, .	5 0	7 0	3 0
c	Total loss on calcination with access of air,	17 5	17 8	21 0
*c*2.	Ditto average of two other trials (more carbonate,)	20 0	20 3	23 5
d	Oxide of copper taken up from calx *c* by dilute acid,	37 7	49 2	73 7
e	Residue of insoluble earths and ox iron, after *d*,	44 8	33 0	5 3*
f	Residue from digestion of crude ore in boiling nitric acid, ...	20 0	13 9	19 0
g.	The same, after burning off the sulphur and redigesting in do . ..	20 0 ?	8 5	0 0
h	Sulphur, separated on boiling in strong acid, .	0 6	2 1	9 0
i	Sulphate of barytes precipitated afterwards, ..	1 4	17 8	28 5
k	Weight of metallic copper actually recovered from *c* 2,	28 5	52 2	59 0

In regard to *d*, No 3, it was observed on digestion in cold nitric acid, that a very considerable portion of the calx of copper was of a red color, or in the state of protoxide, or perhaps in a metallic state, and was not taken up without disengagement of nitrous gas ;—the weight 73 7 must therefore be increased, to give the true weight in terms of the peroxide This is also proved by the amount of loss in *c*, 21 0, which is considerably in excess , and it was remarked on removing the calx from the fire that it was agglutinated, so as per-

* This residue may have consisted partly of sulphuret of copper that had escaped decomposition in the fire ; for another specimen was wholly soluble, and little iron was present in the solution.

haps to have prevented the access of air to oxidate the interior — The sulphur enables us to approximate the correction of this item, for 12 8 requires 51 5 copper, = 64 3 black or peroxide, and this, added to 22 8, the peroxide of the carbonate, would give 87 7, which is 14 0 greater than the actual return from the fire —Again, deducting the deficiency after calcination *(c)* 21 0, from the sum of the three volatile ingredients—sulphur, 12 8, carbonic acid, 7 0, and water 3 0 = 22 8, there remains but 1 8 for the weight of oxygen absorbed in place of the sulphur, whereas 12 8 are required —Adding the difference 14 0 to *d*, we shall have 84 7 This number will be found to be a little in defect from the subsequent results, while 87 7 is a little too great, a mean may therefore be adopted

From the above data, we may now proceed to extract the simple elements of each specimen of ore

		No 1	*No* 2	*No* 3
l	Metallic copper, calculated from the oxide *d*,	30 2	39 5	69 0
m	Pure sulphur, from *h* and *i*,	0 8	4 5	12 8
n	Carbonic acid, less $\frac{1}{10}$th for hygrometric moisture,	10 8	13 1	6 3

The carbonic acid being supposed to be wholly combined with copper, while the sulphur may be partly united with iron, we may calculate the proportions of the carbonates and sulphurets by means of the scale of chemical equivalents, thus

		No 1	*No* 2	*No* 3.
o.	The carbonic acid will require copper,	31 4	38 6	18 3

Now in the first two of these, the copper required so nearly agrees with the calculated weight of metal, *l* that the latter may be looked upon as existing here wholly in the form of carbonate, and the sulphur as united entirely with iron* In No 3, however, we find that the majority of the copper remains, and knowing the nearly total absence of iron in this specimen, we may conclude it to be a mixture of nearly two parts sulphuret, with one of carbonate

The miner would rest content with the determination of the pure metal in the ore, and would have good reason to be satisfied with the 60 per cent. "actual yield" of No 3, or even with the 30 per cent. of the poorest of the three ores, but the mineralogist will prefer an exhibition of the component salts of the ores, according to the usual synthetical formula. I may here remark, that the water separated (*b*) is more than is required to convert the carbonate into a hydrate or ordinary malachite. thus,

* In the second Analysis of No 2, however, the copper actually recovered, *k*, so much exceeds this quantity, that it is evident this ore frequently contains sulphuret, or is of very variable quality.

		No. 1.	No. 2	No 3.
p.	The copper combined with carbonic acid being, .	30 2	39·5	18 3
q.	will require water to hydrate it, ...	4 2	5 5	2 6

The excess in *b* may have been carbonic acid, partially driven off

The chemical composition of the three minerals may therefore be thus expressed.

	No 1	No. 2	No 3.
Hydrated carbonate of copper, ...	52 [illegible]	68 5	31 7
Sulphuret of copper, ...	0	0 [illegible]	63 0
Sulphuret of iron, ...	2 1	12 4	0 0
Oxide of iron, silex, &c	43 5	25 1	5 3
Loss or excess, ...	2 0	—6 0	0 0
	100 0	100 0	100 0

The excess in No 2, is doubtless owing to the irregularity of the rocky admixture in different specimens, whereof one yielded 44, and another only 13 9 of insoluble matter, on digestion in acid

The richness of the last of the three minerals will more than compensate for the increase of trouble and expence in the reduction of the ore by successive roastings, and practical miners assert, that the glance or grey sulphuret is a much steadier and more plentiful ore than the carbonate

I should add, before concluding the above imperfect analysis of the Nellore copper ores, that I tested them in vain for silver and other metals Neither did arsenic appear to be present.

I may here mention, that among the specimens of minerals presented to me by Mr Kerr, as occurring within the copper mining district, associated with the micaceous schist, are the following, corundum and adamantine spar, garnets, dark-green actinolite, red chalk, manganese, besides carbonate of magnesia, and other minerals of which specimens have not yet reached me An ore of mercury is also suspected to exist in the same range of rocks The surface of the gneiss or micaceous schist, where exposed to the air, is frequently seen tinged of a green colour, from the trickling of water holding carbonate of copper in solution, through crevices of the rock

Copper Mines of Singhána, in the Shekáwatí country

I take this opportunity of acknowledging the receipt of further specimens of the ores of these mines from Colonel Stacy —They consist of the yellow and grey sulphurets, carbonates, and the blue native sulphate in deliquescent crystals The latter is probably produced from the pyrites; as is the sulphate of iron from its sulphuret. Both of these occur also at Singhána: the sulphate, from its different tints, having the native names of *píla* and *hara kasís*, or yellow and green vitriol. There is also among the specimens a *mungya*

kasís, which appears to be a compound of alum, and the sulphates of iron, and copper There are two very beautiful specimens of virgin copper in mammellated concretions, coating oxide of iron, which appear to have been formed by a natural decomposition of the blue soluble sulphate on coming in contact with the iron ore

A full description of the Singhána mines, and the mode of extracting and working up the ore, (by Captain Boileau, of the Engineers?) is printed in the third volume of the Gleanings in Science, page 380. It does not appear from that notice, that any previous roasting of the ore is resorted to, but instead of this process, the ore is ground to a fine powder, formed into cakes with cow-dung then burnt in a "clamp," and lastly, mixed with scoria of iron to be blasted The iron in this operation, deoxidated by the charcoal, doubtless assists in removing the sulphur from the copper by its superior affinity. The metal produced from these mines is, however, not thoroughly refined, but according to Captain Boileau, is brittle, and of a lilac colour while that of *Basáwar* in the *Bhartpur* district, (most probably a carbonate) is at once melted down into a fine malleable metal—but on the other hand, the latter is too poor an ore to be worked profitably

The extent to which the *Shekáwatí* mines have been worked in former ages of Hindu prosperity is fully equal to that we have seen of the *Nellore* mines, and strikingly similar in every respect "The scoriæ, or *khangar*, that have been accumulating for ages, have at length formed a line of small hills, several hundred feet in length, and from thirty to sixty feet high there are four insulated stone bastions built on ore of these artificial mounds The rocky ridge in which the excavations have been carried on for generations is pierced by numerous shafts, giving access to the galleries, by which the hills are honey-combed in every direction to the length of a *kos*, if the natives are to be believed" But I must refer to the article whence these paragraphs are quoted, for the whole account will be read with interest.

I am in expectation of further specimens of the *Shekáwatí* minerals from Mr, Dean.

Ajmír Copper Mines.

A new locality of copper ore has recently been brought to notice by Captain C J Dixon, in the neighbourhood of *Ajmír*, where three different shafts have been opened Specimens of the ore extracted thence were forwarded to me by the present Governor General, along with a copy of the report from Captain Dixon, on the subject, dated 8th May, 1835, from which I extract the following particulars :

"The *Ajmír* ore in mineralogical phraseology is 'termed a ferrugenous red oxide of copper,' and being free from sulphur, two operations are sufficient to metallize it, one smelting, and one refining. The ore in *Shekáwati*, as well as the principal ores worked in Cornwall and Wales, are sulphurets, copper pyrites They require successive calcinations, roastings, and smeltings, eight separate processes being essential to perfect metalisation At the same time, that our operations are conducted with celerity, and consequently at a comparatively small outlay, inasmuch, that the ore, on the third day after it has been dug from the vein, is reduced to a metallic state, adapted for sale, (while in Europe calcination alone occupies several months,) the business of smelting is wholly free from that noisomeness, so injurious to health, which characterises works of this nature at home, when sulphur forms an ingredient in the chemical composition of the ore.

"The first vein was opened near *Gúgra*, four miles N N East of *Ajmír* It runs north and south, and its breadth varies from a span to four inches It is situated on the plain, within one hundred and fifty yards from the range of hills, its greatest depth being sixty feet from the surface An admixture of ores from separate veins is essential to a complete fusion, and with this intention, a vein was sought and opened at *Rájgarh*, twelve miles S S West of this This vein, also on the plain, but near the hills, is only twenty-five feet from the surface, while a third has been opened, within the last fifteen days, near *Rajáurí*, ten miles south of *Ajmír*. The presence of copper has been detected at other spots indeed, it is beyond doubt the whole of the *Ajmír* valley is traversed by veins, which run from *Kishengarh* to *Rájgarh*, a distance of thirty miles, industry and capital being the sole requisite to their complete development. In Cornwall, good veins are not met with, until attaining a depth of three hundred feet and upwards At present, our labours are confined almost to the surface The transmission of these specimens will, I hope, prove so far useful, that should the Honorable the Governor General be pleased to make them over for analyzation to some scientific gentleman in Calcutta, their intrinsic value as ores will be ascertained, for though the studies of the laboratory be as widely different in their issues from the labors of the furnace, as theory is from practice, still a favorable result in the former will be highly satisfactory, and may at a future period warrant the establishment of the works on a large scale. In exemplification of the observation in reference to theory and practice, various specimens treated in the study yield from twenty to eighty per cent., while the average produce of the mines in Cornwall for some years past has ranged from eight and a quarter to

ten per cent of metal The reason is obvious. In the small way, assorted specimens are selected, and by proper care and attention to their treatment, every particle of metal is recovered But in the large way, in the smelting furnace, rich and poor ores with a good deal of extraneous matter incorporated therewith are fused together. Hence the result of the furnace always falls short of the issue of experiments in the study"

Captain Dixon is quite correct as to the fallacy of trusting to the results of the laboratory in regard to the average produce of mining operations The nature of the ore, and of its associated minerals, is all that the chemist can pronounce upon In this respect, the *Ajmír* ores, like those of *Bhartpur*, hardly offer much encouragement. none of the specimens, small as they are, consist of homogeneous ore, but are in general, merely coatings of carbonate on a ferruginous matrix, or veins in quartz and a micaceous schist It is probable, however, that small cabinet specimens would be selected for this very object of shewing the connection with other rocks, and that far richer lumps are taken to the smelting house

The ore from *Kájgarh*, twelve miles S S W of *Ajmír*, is accompanied with slender prismatic crystals of selenite, of black augite, hydrated red oxide of iron, and carbonate of the same metal "There are also veins of an aluminous or silicious malachite, which may be termed *turquoise copper ore*, it is of a fine blue colour, translucent where thin, breaking with conchoidal fracture, and apparently capable of being converted to ornamental uses It differs from the turquoise*, in being insoluble in acids, which take up only the green colouring matter, a carbonate of copper. I have not further analysed this curious mineral At *Rájauri*, ten miles S W of *Ajmír*, the carbonate is of a lighter colour, more earthy, and accompanied with small yellow scales of mica and iron At *Gúgra*, four miles N N E of *Ajmír*, the malachite is associated with carbonate of lead, a micaceous carbonate of iron, and with a rich galena or sulphuret of lead Yellow copper pyrites also shews itself, and earthy veins of a pale blue, very similar to some of the streaks in the turquoise rocks of Nishapur, in Persia It is possible that this mineral itself might be met with, on farther search, if felspar or other aluminous minerals exist in the *Ajmír* hills the matrix of the turquoise is also a red iron clay ore, very similar to that of the copper mines.

* See analysis of this mineral in the *Gleanings in Science*, ii. 375.

VIII —*Proceedings of the Asiatic Society*

Wednesday Evening, the 4th November, 1835.

Captain PEMBERTON, Senior Member present, in the chair

The Hon'ble Sir BENJAMIN MALKIN, Kt, and CHARLES HAY CAMERON, Esq, proposed at the last meeting, were ballotted for, and unanimously elected Members of the Society

Read a letter from Lieut W C. BAKER, acknowledging his election as a member

Read a letter from THOMAS DICKENSON, Esq, Secretary Bombay Branch of the Royal Asiatic Society, acknowledging the receipt of a copy of the Index to the Asiatic Researches

Read a letter from CHARLES KONIG, Esq Foreign Secretary to the Royal Society of London, acknowledging the receipt of a copy of M CSOMA DE KOROS's Tibetan Grammar and Dictionary

Library.

The following books were presented

Proceedings of the Geological Society of London, No. 39—*by the Society*

Madras Journal of Literature and Science, No 9, October 1835—*by the Madras Literary Society*

A Treatise on the manufacture of Saltpetre, descriptive of the operations and proper plans to be used for the manufacture of Culmee and Cooteah—*by Mr J Stephenson, and presented by him*

The Indian Journal of Medical Science, No 23—*by the Editors*

Meteorological Register for September, 1835—*by the Surveyor General*

The following books were received from the Oriental Translation Fund

The Chronicles of Rabbi Joseph Ben Joshua Ben Meir, the Sphardi Translated from the Hebrew *by C. H F Bialloblotzky*, vol I.

Miscellaneous Translations from Oriental languages, vol. 2nd

Les Aventures De Kamrup, par M Garcin De Tassy

Harivansa, or Histoire de la Famille de Hari, part 1st—*by M A Langlois.*

Ethiopic Didascalia, or the Ethiopic version of the Apostolic Constitutions received in the Church of Abyssinia, with an English translation—*by Thomas Pell Platt, Esq, F A S*

Nipon o Dai itsi Ran, ou Annales des Empereurs du Japon, 1 vol —*by M J. Klaproth*

Lardner's Cabinet Cyclopedia, Swainson's Animals

A piece of ancient Hindu Sculpture, representing a female (goddess), with a child, walking, dug up in the ruins of Canouj, was presented by Colonel STACY

Literary

Read a letter from W H MACNAGHTEN, Esq, Secretary to Government, Political Department, forwarding on behalf of the Honorable the Governor General of India in Council, a copy of notes taken by Captain WADE, relative to the territory of Iskardoh, and of his correspondence with the ruler of that country

A memoir on the mountain tribes, on the extreme N E. frontier of Bengal, by J. McCOSH, Civil Assistant Surgeon at Goalparah—*presented by the Author*

Extracts from both these papers were read.

Physical

The following extract of a private letter from Captain CAUTLEY to the Secretary was read, noticing the discovery of further fossils in vast quantity in the Sewálik range.

"A trip to the Sewáliks, near the Pinjore valley, lately, has introduced us to the *Anoplotherium ?** in a perfect line of six molars on one side, and four ditto in the other side of upper jaw I say *Anoplotherium*, for the rear molars have the distinguishing mark in the insulated mamilla pointed out by CUVIER†, as that which distinguishes the Anoplotherium from the Palæotherium, although the position of the molar bone, part of which is distinguishable, appears to differ from that of the former animal, and gives it a greater resemblance to the Palæotherium, this is a beautiful fossil, and *dug out* but I must give you a history of the last week

"I had to visit Dádupur on canal matters, and found both BAKER and DURAND as eager as myself for a short excursion into the Sewáliks, and as all our parties were out, we determined on visiting those most westerly, who were working at a village called Moginund (a common name apparently) in the Ramgurh district, about 50 miles W of Dádupur our route took us through Sidaura, Naraingurh, Mír ká Gurhi, Ramgurh, to the village of Moginund, which lies in a nook of these little hills, open only on the west here we remained three days, returning to Dádupur by regular marches, and visiting Khet Púrali, another little, village close under the hills on our way, as near this village is a stratum of a clay conglomerate, or marl full of testaceous remains chiefly Bivalves (varieties of Unio,) reptiles, and fish, of the former, you have already specimens, and with the latter, you shall be provided in due course The country on this route was open and well cultivated, rice in great abundance, and cultivation of all sorts up to the foot of the hills These hills differ much in appearance from those between the Jamna and Ganges, the abruptly scarped precipices, and mural cliffs, with the huge strata of shingle, are here replaced by a comparatively low series of undulating hills, consisting of an eternal succession of sands and clays, with here and there beds of a coarse sandstone, or fine shingle conglomerate, accessible at all points excepting those where slips have taken place, and free from jungle and high vegetation, excepting in hollows, and the lines of ravines skirting the tributaries to the main outlets of drainage

"The hills were covered with fossils like all the others (how they could have escaped observation before, must remain a source of wonder) Mastodons and hippopotamus's remains looking one in the face at every step! Amongst the remains collected were those of the *rat* and *porcupine*, too perfect to admit of any doubt The specimens of each consisting of the *palate*, with the two lines of *molars ! ! !* Although three days at this place, and superintending my digging parties, I must confess my inability to decide strictly whether we were working in a *stratum* or in *debris* this may appear strange to a person who has been unaccustomed to examine and decide on the position of strata, but will be understood and appreciated I imagine by any one who has had his attention strictly brought to bear upon the point Shrubs, inequalities of surface, ravines, et hoc genus omne, all and each of them battling every inch! I am however inclined to consider that we had both, and that we were working in both a soft sandstone stratum, and also in a superficial coating of debris A great number of perfect bones, the whole series of a leg for instance, jaw bones, and other remains were fairly found and dug out from the rock, at other places, huge masses of hard rock were found imbedded in the softer rock or soil, the said masses consisting in most cases of agglutinated bones the shape of these masses give an appearance of their having fallen *formerly* from some parent rock, and being *now* found as debris, but the circumstance of finding the connected joints of animals is altogether in favor of the excavation being in the stratum in which they were originally deposited The question does not appear to me of much consequence, as the bones are not rounded by attrition, and are as sharp and perfect in their form and outline, as when belonging to the living animal, although frequently broken, and jammed together, as would be the case in a skeleton or a mass of bones being forced together in an upheavement of the country upon which or in which they were collected

"I may remark that our excavation was not on the outcrop of the strata, but in the slope, and the working parties were successful in their operations at many points on the whole surface of that side of the mountain This deposit appears to be altogether wanting in the mastodons, reptiles, and hippopotami · the remains at present dug out consist of portions of anoplotherium or palæotherium, rhinoceros, hog, horse, ruminants of the most gigantic dimensions, with those of the smaller classes, carnivora, hyæna, canis, tiger (or lion), and a small species of a feline animal, a very perfect cranium of which is in the possession of Lieuts DURAND and BAKER. Many

* This fossil is either the Anoplotherium, or a new variety of the Palæotherium, and if it was not for the insulated mamilla, referred to, its classification amongst the latter genera would, I suspect, be undoubtedly correct The discovery of more perfect remains of the head, will settle this point at once

† Volume iii p 21. Ossemens fossiles.

of the bones of these animals are coming out perfect, and some have been found, as I before mentioned, in connected joints!

"With reference to the Sivatherium, I regretted much my inability to obtain the dimensions of one of the most superb fossils, I suppose that ever was found, it was unfortunately discovered and excavated by a party of work-people employed by a gentleman with whom I was unacquainted, and although I saw the fossil when in the rock, I was prevented from getting the measurements afterwards. This specimen consisted of the femur and tibia, with the tarsal, metatarsal, and phalanges of one of these gigantic ruminants that time and patience will and must introduce us to! In the bones of all the animals discovered, there are differences from those of their existing congeners that will be pointed out hereafter, it may be sufficient here to advert to the fact. The teeth that are found at this spot are beautifully perfect, and from the softness of the matrix or rock in which they are imbedded, easily cleared and exhibited There is an evident grouping of animals throughout! The hippopotami, mastodons, &c. which in some localities are in such abundance, are in others wanting, their place being occupied by carnivora, ruminants, &c The testaceous remains as yet found have been accompanied by reptiles and fish. We have in fact an extended tract of country upheaved, and the different groups as might be expected in their natural habitats!! It is hardly a month since I attempted, in a note on the Gavial of these hills, to enumerate the probable proportions of animals that existed on this tract! During this short period, we have added another family, Rodentia, to our catalogue, and another genus of the Pachydermata, besides the splendid additions to our former list in the further elucidation of those already found, in the discovery of more perfect specimens of bone, especially of the horse, rhinoceros, and the larger ruminants!! You will join with me in an exclamation, which has been upon my lips, day after day, since the discovery of the first fragment of bone—'*What shall we have next?*'"

1 A small, but splendid, collection of stuffed birds, presented by Captain PEMBERTON

As they were received only the same morning, the Curator deferred his report until the next meeting

2 A species of *Pteromys*, presented by Captain DAVIDSON, from Goalparah, Assam

3. A collection of Mammalia and Birds from Goalparah, Assam, presented by Dr. McCOSH The collection consists of the following specimens

Mammalia

1 —*Mungusta Mongoz*
2 —*Pteromys*
3 —*Moschus Memina*
4 —*Moschus Memina*—(Skeleton)

Birds.

1 —*Alcedo Bengalensis*
2 —*Dicrurus Cærulescens*
3 —*Turdus Saluaris*
4 —*Oriolus Melanocephalus.*
5 —*Eudynamys Orientalis.*
6.—*Buceros Homrai.*
7 —*Buceros Malabaricus*
8 —*Garrulus Bengalensis.*
9 —*Polypleitron Hardwickii.*
10 —*Phasianus Gallus*—2 male and 1 female specimens.
11 —*Phasianus Lineatus.*
12 —*Gallinale Porphyrus*
13 —*Fulicula Caryophyllacea.*

The *Buceros Homrai* is considerably larger than the one described by Mr. HODGSON in the 2nd part, 18th vol. Researches of the Asiatic Society From tip of the bill to tip of the tail, Dr McCOSH's specimen measures five feet two inches, that of Mr HODGSON's is only four feet 5½ inches in length and by comparing the bill and casque with two of the Nipal bird, in the cabinet of the Curator, the inferior size of the latter is very apparent There is, belonging to Captain PEMBERTON, a specimen now upon the table, of the bill and casque of the same bird, from Chittagong, even larger in size than that from Assam.—CUR.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of October, 1835

Day of the Month	Observations at 10 A M: Standard Barometer, at 32°	Wet Barometer, at 32°	Aqueous Tension deduced	Thermometer in air	Diff. of W & T Depress	Leslie's Diff. Hygrom	Hair Hygrometer	Observations at 4 P M: Standard Bar at 32°	Wet Bar at 32°	Aqueous Tension deduced	Thermometer in air	Diff. of W & T Depress	Leslie's Diff Hygrom	Hair Hygrometer	Register Thermometer Extremes: Cold on roof	Heat in sun	Rain	Wind: Morning	10 A M	4 P M	Weather: Day light	10 A M	4 P M
1	29,849			87,5	7,7			,733			92,4	12,6			79,5	122,0		o	N	o	clear	clear.	
2	,807			87,0	9,6			,690			93,8	16,3			78,8	127,8		W	n	W	do	do	do
3	,775			86,3	9,0			,679			91,5	15,2			78,2	129,2		nw	n	o	do	do	cum str
4	,838			80,5	7,3			,769			82,4	6 0			77,8	108,9		e	e	S	cum	cum.	squall &
5	,883	28,692	1,191	88,5	4,4	4,9	95	,769	,547	1,222	85,5	4,9	5,2	94	76 6	111,1		e	e	se.	do	do	nimbus.
6	,856	,647	1 209	85,3	5,1	4,6	95	758	,589	,169	84,6	6,2	5,4	93	76,0	113,6	,25	e	se	n	do	do	showery
7	,842	,686	1,156	84,1	3,6	3,6	97	,716	,494	,219	85,3	5,4	5,2	95	75,2	123,2		o	W	e	c. c	do	cumuli.
8	,834	,648	1,186	84,5	5,2	5,2	93	714	,498	,216	85,5	7,4	7,9	86	75,8	123 2		n	NE	ne	clear	do	fine
9	,838	,646	1,182	84,5	7,2	7,4	87	714	,496	,218	85,9	12,1	12,1	73	74,0	125,5		nw	NW	N	do	fine	clear
10	,706	,629	1,167	84,1	6,8	8,7	85	,712	,408	,304	86,7	12,0	11,7	76	74,2	119,5		sw	W	W	do	fair	fair
11	,847			83,0	9 7		87	,751			85,2	16,6			74,0	130,0		nw	nw	o	fog	clear	do
12	,892	698	1,194	84,7	7,2	7,7	87	,778	,540	,238	86,0	8,1	8,3	85	73,5	128,2		nw	NW	nw	do	fine	clear
13	,836	,638	1,198	84,8	6,9	6,7	89	722	,472	,250	86,3	8,7	9,6	83	74,2	125,0		wnw	NW	w	do	do	fine.
14	,816	,584	1,232	85,8	6,8	7,3	88	,680	,402	,278	87,3	9,0		76	76,8	115,2	,60	ne	ne	ne	cir cum.	do	do
15	,780	,558	1,222	85,7	5,8	5,6	94	,676	,397	,279	87,0	7,0	6,2	93	76,0	114,0	,25	E	ne	e	cir	hazy	threatning
16	,734	,496	1,238	85,6	5,8	5,1	94	,685	,312	,313	87,7	8,0	8,3	87	75 1	111,2		E	e	e	hazy	overcast.	do
17	,719	,470	1,249	86,1	6,5	5,4	93	,622	,396	,226	86,7	7,4	6,4	91	77,3	112,1	,65	E	ne	nw	do	cumuli	rain.
18	,744			83,5	5,1			,670			82,0	7,2		96	76 2	86,4		o	o	n	cum cir	clear	hard storm
19	,722	,642	1,080	82,0	4,5	4,4	96	,640	,470	,170	84,4	5,2	4,6	96	72,0	87,5	3,30	SE	SE	se	rain.	overcast.	gathering
20	,738	,636	1,102	82,6	3,6	3,0	98	,634	,428	,213	85,4	6,6	5,8	93	70,0	98,2	,10	s	sw.	sw	cumuli	do	cumuli
21	,739			80,4	5,4			,633			81,3	5,4			75,6	110 5		E	E	e	cum str	cum.	rainy
22	,729			81,3	4,3			,632			83,0	8,1			75 7	116,2	,05	o	N	o	fair	do	cloudy
23	,781			79,5	3,6			,696			82,0	8,3			75,0	107,5	,75	N.	N	n	cum str	rain.	strati
24	,826	,607	1,123	82,7	3,8	3,8	98	,704	,572	,132	83,7	6,0	5,0	93	75,4	119,5		o.	NW	nw	cir cum.	fine	fine.
25	,883			80,0	9,4										75,0	113,7		N	N	nw	fair	cum.	do
26	,927	,846	1,071	80,9	8,9	9,3	80	,827	,697	,130	82,5	10,8	9,5	81	68,7	120,6		NW	N	nw	clear	cum str	do
27	,939	,898	1,041	80,2	9,0	8 0	85	,822	,698	,124	82,3	9,7	8,7	83	68 5	120,5		NW	N	nw	do	cum cir	do
28	,919	,874	1,045	80,1	8,3	8,0	86	798	,676	,122	82,4	11,1	10,1	81	67,6	126,5		NW	NW	nw	do	fine	fair
29	,894	,836	1,058	80,6	9,0	8,7	83	,808	,697	,111	82,3	11,1	10,0	79	68,4	126,2		NW	NW	nw	do	fair	do
30	,908			78,5	11,0			,791			81,2	12,3			70,3	124,0		N	N	N	do	do	cum.
31	,911			79,5	10,3			,799			81,5	15,5			74,0	127,6		N	N	N	do	hazy	hazy
Mean.	29,826	28,690	1,155	83,3	6,8	6,2	91	,707	,515	1,207	85,1	9,3	7,7	86	74,4	117,0	5,95	North monsoon set in			One storm on the 10th.		

Instruments the same and placed as usual.

JOURNAL

OF

THE ASIATIC SOCIETY.

No. 47.—November, 1835.

I —*Notes taken by Captain* C M. WADE, *Political Agent at Ludiána, in* 1829, *relative to the Territory and Government of Iskárdoh, from information given by* CHARÁGH ALI, *an agent who was deputed to him in that year by* AHMAD SHÁH, *the Gelpo or ruler of that country.*

[Read at the Meeting of the 4th November]

[In publishing the accompanying memoir, we have purposely not availed ourselves of the permission given us by the author, to omit the copies of his correspondence with the Gelpo of *Iskárdoh*, because the dates of these letters establish the fact of Captain WADE's attention having been drawn to the traditionary history of this place in 1829, previous to the information acquired in Lieut. BURNES' travels that appeared in our second volume. In 1831, Captain WADE urged M JAQUEMONT to push his way into little Tibet, as may be seen by a remark in his letters, and the deputation from the ruler of *Iskárdoh* therein described, consisted of the same individuals whom our author interrogated at *Ludiána* Mr VIGNE, an English traveller, is now on his way to little Tibet, and will doubtless clear up the important question suggested to the native ruler by MOORCROFT, whose own papers probably contain some speculations on the subject (See also CSOMA DE KÖROS's note on the geography of Tibet, J A S. vol. i 121, and BURNES' note, ii 306)—ED]

PRELIMINARY CORRESPONDENCE

From AHMAD SHA'H, *the Gelpo or ruler of Iskárdoh (capital of little Tibet), to Captain* C. M WADE, *Political agent at Ludiána.*

After Compliments,

Sometime ago Mr. MOORCROFT came towards my country*, and by his friendly disposition and great kindness, sowed the seeds of a lasting friendship in my heart.

Adverting to the general rule and practice which the English observe of making a friend of every stranger, and that, please God, they will never alienate themselves from one with whom they are already connected, on hearing the news of your auspicious approach (Captain WADE's first mission to the Panjáb in 1827, from Earl AMHERST, the Governor General of India,) I wrote to you and sent you a message, but my letter was intercepted on the way by my enemies, and prevented from reaching its destination†.

* Mr MOORCROFT opened a correspondence with AHMAD SHA'H from Ladákh, but did not visit Iskárdoh

† The letter of which a translation is now given was brought by way of Kolu It was folded in the size and shape of a rupee, and was enclosed in a piece of leather and worn as an armlet to elude discovery, the Sikhs and the people of Ladákh both

Several letters addressed to me by Mr. MOORCROFT, are in my possession, and I bear his communications in my mind I would send you one of his letters, but I regard them as sacred relics, and do not like to part with any one of them, lest it might fall into the hands of malevolent enemies on the way The following is a passage from one of the letters which I received from him "It is supposed that ALEXANDER the GREAT came to Iskandaria, and that some vestige of him is still to be found there In that event, is it in the form of arms or weapons, or books, and if books, are they in the Persian or Grecian language* " He gave me at the same time some kind and considerate counsels I was not then aware of any vestiges, and Mr MOORCROFT departed on his journey After some research I have ascertained that there is a part of the foundation of an old dilapidated fort, which was destroyed by fire If there should be any thing, it will probably be found beneath these ruins God knows Let me recommend you therefore to depute an intelligent gentleman of your own tribe, who will be able to satisfy himself by personal inquiry on every subject, as well as on the existence or otherwise of the Macedonian relics that are supposed to be here

There was a report, that Mr MOORCROFT was desirous of finding a way to Yarqand, but his scheme was frustrated by the intrigues of the people of Ladakh If you have the same design, there is a passage to Yarqand through my country, which is available to you if you please Consider my humble roof as your own

Do not fail to despatch some one on your part I am anxiously waiting to receive him Although it is like the ant preferring a petition to SOLAIMAN, there is no impropriety in making an application, and I trust that you will not withdraw your hand from the request of the petitioner

I suspect that some vestiges of ALEXANDER the GREAT are likely to be discovered beneath the foundation, but God knows whether there are any or not.

From Captain WADE *to* AHMAD SHA'H, *dated the 22nd of August*, 1829

After Compliments,

I have been delighted by the receipt of your friendly letter, transmitted by the hand of CHARA'GH ALI SHA'H, your agent The perusal of it afforded me the highest gratification in the glad tidings that it conveyed of your health and happiness What you write regarding the journey of Mr MOORCROFT in your direction, and that he cultivated amicable relations with you, is very intelligible It is the duty of the officers of the British Government to consider those who are well affected towards them as their sincere friends, and to attach them by daily increasing ties of unity and friendship

As I have been engaged on a journey (to Delhi), the dismission of your agent has been delayed I now take the first opportunity of giving him his leave to return On his arrival in your presence, he will communicate to you the sentiments of esteem and regard which you have established in my heart

Considering me among your well wishers, continue to delight me often by the receipt of your friendly letters

From AHMAD SHA'H *to Captain* WADE

After Compliments,

Praise be to God, that by the blessing of his infinite favour, the garden of friendship and unity, watered by his mercy and bounty, is blooming between us, loaded with fragrance and joy

I offer thanks to the Almighty, that I have had the pleasure to receive your propitious letter by the arrival of my agent CHARA'GH ALI, adverting to the gratifying expressions contained in it, that, it is the rule of the British nation

being supposed to be jealous of the writer's design There is enmity between AHMAD SHA'H and the chief of Ladákh, and the presence of the Sikhs in Kashmír renders it difficult to maintain a communication by that route without their knowledge

* AHMAD SHA'H's agent informed me, that there was a book in his master's possession in a character which no one could read He described it to be bound in a clasp cover It is probable, that this book is a Latin Bible, left by some of the Jesuits who visited this part of Asia in the 15th century, and not of any Grecian origin.

to cultivate relations of friendship, and make friends of strangers, and never to alienate themselves from their friends, thank God, that my wish is gratified.

CHARA'GH ALI has delivered to me your message, that you were desirous of receiving intelligence from this quarter as well as of the state of affairs in the neighbouring countries Immediately on his arrival, I sent one of my people to collect information, but unhappily, he had scarcely reached the midway of his destination, which is two months journey from hence, before he died I forthwith despatched another person, but he has not yet returned In consequence I have postponed CHARA'GH ALI's departure to you until his return If the man whom I have sent come back before the snow begins to fall, CHARA'GH ALI will soon have the honor of presenting himself before you, but if, God forbid, he should not have returned when the winter has commenced, and the road becomes impassible, I will still depute CHARA'GH ALI to you with intelligence of such passing events as may come to my knowledge*.

I have nothing more to add than to express my hope, that you will not forget to gratify me constantly by tidings of your welfare

From Captain WADE *to* AHMAD SHA'H, *dated the 8th of Feb* 1831

After Compliments,

The receipt of your friendly letter, at a time when I was very anxious to hear from you, has delighted me beyond measure, and the news which it contained of your health and happiness have afforded me the highest gratification

I am rejoiced to learn, that you have sent a person to collect intelligence regarding the state of affairs in your quarter, and your intention of communicating the result to me by the hand of CHARA'GH ALI, when your messenger should return These friendly offices bear ample testimony to your good will towards the British nation I expect that ere now you will have despatched your agent with intelligence from that quarter It is evident that there is nothing in the world more exalted than friendship, for the peace and good order of the affairs of mankind depend on it When its benign influence reigns between different nations, it is especially productive of mutual advantages

Regard me among your sincere friends, and gratify me often by your friendly communications, as they are a source of great delight to my mind

From AHMAD SHA'H *to Captain* WADE

After Compliments,

Praise be to God, that through his blessing, affairs in this quarter at the present date are in a satisfactory state The mirror of my heart is soiled with no care but the desire of an interview with you, which by the divine favour I hope will soon take place May success and prosperity attend your tribe

It must not be concealed, that from the beginning I have been moved by an anxiety beyond bounds to connect myself with the well-wishers and faithful servants of your Government, by ties of friendship, and to identify myself without reserve with their interests My mind was occupied with these thoughts when Mr MOORCROFT happily came and resided in my vicinity (Ladákh), where he was delayed for a time from a cause which I have heard, but do not exactly know the secret of the affair At that period he opened a cordial communication with me by the interchange of friendly letters, after which, I had no opportunity of gratifying my heart's desire I then despatched CHARA'GH ALI with a letter to you, and had the pleasure to receive one in reply Although my agent was engaged to return to you soon, his departure has been delayed owing to a circumstance which the bearer will explain Since that time, I have written several letters successively to you, which do not appear to have reached their destination

Mean while, M JAQUEMONT came to Kashmír, and renewed the friendly sentiments which posesssed my heart I deputed CHARA'GH ALI and another person named NA'ZIM to him, and had the gratification of cultivating through them the

* With the present letter I received a separate paper, containing an account of the recurrence of the insurrection in Eastern Turkistán, which I forwarded at the time to the Secretary to the Governor General, who had received information of the event from the Select Committee at Canton, and was desirous of receiving any intelligence that I might have on the subject.

seeds of friendship with that gentleman I afterwards addressed several letters to him, which with the exception of one which I despatched by the hand of a man MOHAMDU by name, and to which I had the pleasure to receive a reply, failed to reach him. Since that period, notwithstanding every exertion on my part, I have not been able to renew my correspondence with him

I have now the felicity to despatch NA'ZIM to you, who, please God, will, on his arrival, mention to you in person every thing connected with me and my affairs. My object is to request that you will depute a confidential agent to me, that I may entrust to him some secrets which I wish to impart Although the application of an humble individual is considered forward and presumptuous, yet recollecting your kindness, and the reputation which you enjoy with the world for your friendly disposition, I have taken the liberty of communicating my wish to you, and I hope that it will be deemed deserving your consideration, that both parties may be reciprocally benefitted

From Captain WADE *to* AHMAD SHA'H, *dated the 22nd of February*, 1834

After Compliments,

I have been gratified by the receipt of your kind letter at an auspicious moment, when my thoughts were directed towards you Its arrival has expanded my heart with joy, as it assured me of your health and welfare

The communications with which you charged your servant NA'ZIM have been delivered to me What you wrote regarding the feelings of attachment and regard by which you are moved towards my countrymen, I can well appreciate The fact is, there is nothing more valuable or estimable in the world than friendship, tending as it does to promote the peace and prosperity of mankind It is particularly conducive to their welfare, when its fruitful influence prevails between different nations The British Government has a due regard for every one with whom it has any amicable relations I, as well as the Government which I serve, are aware of your sentiments of attachment and friendship, but as I cannot properly depute a person on my own part nor answer your questions without the permission of my Government, and the Right Honorable the Governor General happens at present to be absent on a distant journey (at Utacamund), and the hot season is rapidly approaching, I do not consider it advisable to detain NA'ZIM with me, until I can get a reply from His Lordship I have therefore dismissed him on his return He will communicate to you the sincere regard which I entertain for you, while I inform my Government of the contents of your letter, and will let you know hereafter what reply I receive

Considering me among your sincere friends, continue to gratify me frequently by the receipt of your welcome letters

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Situation —Iskardoh is a mountainous country, divided into valleys of various extent It is situated towards the point where the *Belat Ták* and *Mus Ták* mountains converge and separate the lofty ledges of *Tibet*, from the plains and valleys of *Turkistan* among the natives it is generally known by the name of *Beldestán*.

Tradition —The tradition is, that ALEXANDER the GREAT came here on an expedition towards *Khatá* or Scythia (modern China), and that the *Koteli Musták*, or the *Musták* mountains, which lie between *Yárqand* and *Khatá*, being at that time impassable, on account of the depth and severity of the snow, the Macedonian halted on the present site of the capital, until a road could be cleared for his passage; when, leaving every part of his superfluous baggage, together with the sick, old, and infirm of his troops behind, in a fort which he erected while there, he advanced against *Khatá* These relics of the army founded a city, which they named *Iskandariá*, or *Alexandria*, now pronounced *Iskárdoh*

Extent —In length, the territory of *Iskárdoh* is estimated to be a journey of 11 days, and its average breadth about nine days' journey. On the east it is bounded by *Ladákh*, which is a journey of 11 days from the capital, and on the west, by *Gilget*, a journey of nine days. *Yárqand* bounds it on the north at a distance of 12 days' journey, and *Kashmír*, on the south, a journey of nine days*.

Climate —The valleys which intersect the country are warm, but free from the excessive heats of summer, and though cold in many places, partake of a more uniform and temperate climate, than might be inferred from their extreme elevation During the winter months, the snow lies in the city about three spans in depth It snows, but never rains The atmosphere throughout the year is stated to be remarkably dry and clear On the summits of the neighbouring mountains, the snow is perpetual

Vegetable and mineral productions —Its vegetable productions are nearly the same, but not so exuberant as those of *Kashmír* There are a few trees, such as the plane, poplar, and willow, which grow to a considerable size It produces every kind of fruit peculiar to a cold climate, such as plumbs, cherries, apricots, currants, walnuts, &c An oil is extracted from the kernel of the apricot, which is universally used by the people for culinary and other purposes The country abounds with rhubarb and asafœtida Among the mineral productions may be named gold, sulphur, arsenic, and *Sohan Makhí*, which are found in the *Shakar* district In *Revend* also, there are mines of gold, arsenic, crystal, and *Sohan Makhí* , and in the district of *Baraldoh*, there is a sulphur mine, the effluvia of which is so strong as to be suffocating to those who approach it A stone called *Múrdar Sangh*, said to possess an antipoisonous quality, is found in some places. Forwards, the western extremity of *Shakar*, on the bank of a stream which comes from the *Nagar* territory, there is a hot spring, by bathing a few days in the water of which, persons who are subject to rheumatic affections or cutaneous disorders are sure of being cured, particularly those who are infected with disorders of the latter kind On the top of the hill, which is situated near this spring, stands a *Chillá* or cell, where the superstitious Muhammedans are in the habit of worshipping the diety in abstraction for 40 days, during which they take no other food than a few grains of barley and the smallest possible quantity of water, consistent with the support of life† The shrine was built by Sháh Nasir Amam Syed Khusro To the north of *Hazúrú*, in the

* A day's journey averages about 15 miles.

† A form of penitence common in other Muhammedan countries.

district of *Duvan,* there is another hot spring, the water of which is so warm that if a drop of it fall on any tender part of the body, it will produce a blister It rises to a height of 2½ feet

Mountains.—The territory of *Iskárdoh* lies in the midst of a region of mountains, exceeding in grandeur any in the known world, but depending for a description of the country on the oral evidence of a native, whose limited range of observation renders it difficult for him to convey his knowledge in a manner easily intelligible to an European inquirer, it would be vain to attempt a particular account of the mountainous features of the country*, much of the information that is now given must partake of the vagueness of the source from which it is derived Where there is nothing, however, but a complete blank in the latest maps regarding a country which is likely to be interesting to the antiquarian, it seems better to throw even these faint rays of light on its history and geography, than to withhold them altogether, because they may not happen to possess the best claims to accuracy

Rivers.—There are two great rivers, besides several small streams and innumerable springs, one of the rivers has its source in the direction of *Chílú,* and another comes from *Ladákh* They unite near the fort of *Karkes,* and then taking their course by *Iskardoh,* where the united stream, which forms a large river, is called *Gæmsú* On its passage towards the plains, the same river is known by the name of *Atak,* or Indus When the river rises, it overflows its banks, and spreads below the city to a breadth of 300 paces. Its ordinary width is about 100 paces There are two boats in use here on the river, the first that are to be seen on the Indus in its course through *Tibet* The other river rises near *Shakar,* and after being joined by the *Saghar* stream, falls into the Indus below the fort of *Iskárdoh* The people from *Chílú* and *Iskárdoh* travel in the winter season by the river Indus on ice, and drag their baggage over the frozen surface by ropes

Roads.—A high road leads from *Iskárdoh* to *Yarqand,* merchants travel by it in qafilás, but travellers and servants of the Government who go on business, proceed singly, or not, as may suit their convenience. It is crossed by a very lofty range of mountains, which is only passable with safety at a particular season of the year There is a considerable road also by *Gilget* to *Kunduz, Balkh,* and *Bokhara* The Usbeks came to *Gilget* with horses, which they exchange for

* From the magnitude and variety of streams which flow west and east of the Belat Ták, and Musták ranges, it is probable that the mass of mountains which spring from their basis reach their greatest height in the vicinity of *Sirakot,* which is on the north-west frontier of *Iskárdoh*

gold. Other roads go to *Ladákh*, *Kashmír*, and the territory of the Yusafzaís Between *Iskárdoh* and *Kashmír* there is an extensive *Dasht*, or wilderness, called *Beyarsa*, but by the Kashmírians, it is named *Deosu*, towards the southern end of which is a small lake, where travellers alight The plain is covered with a coarse kind of grass and bushes There is not a tree to be seen on it It abounds with bears, and *tabarghan*, an animal which resembles and equals a monkey in size and appearance A traveller from *Iskárdoh* to *Kashmír* enters the valley of *Kashmír* by the *Khoyameh* pass, which is subject to the authority of the Government of *Kashmír* DILÁWAR KHÁN, the late proprietor of *Khoyameh*, is at present in confinement with the Governor of *Kashmír*, and SURAJ BHAN, one of the Pandits of *Kashmír*, has been placed in charge of the district* The road to *Ladákh*, passed by *Chilú*, opposite to *Jhoriet*, which lies on the frontier of the *Chílú* district, is the *Teára* province, which forms the western frontier of *Ladakh* From *Teára* to *Ladákh* is three days' journey eastward. There is a station for levying transit duties on the *Teára* frontier, the collections of which are remitted to the Ladákh treasury. From *Teára*, the pass of *Rahara Kharam* is three marches distant, beyond which extend the dominions of the Emperor of China A regular communication is maintained on the Chinese frontier from one station to another by Chapars or *Suwárs*, instead of foot runners, who convey intelligence with great rapidity

Divisions of territory —Including the district of *Iskárdoh* itself, there are altogether nine divisions of territory actually subject to AHMAD SHÁH, the ruler of that country Their extent is determined by the limits of the valleys in which they are situated First, the district of *Baraldoh*, which is held by SULIMAN KHÁN, the nephew of the ruler From *Baraldoh* to the city of *Yarqand* is a journey of eight days. Second, the district of *Parkotah*, in charge of GHOLAM SHÁH, his brother It stands in an open valley, from which issues a road to *Kashmír*, practicable for horses Third, the district of *Taltí*, which belongs to AHMAD KHÁN, his cousin Fourth, the district of *Kartákhshá*, assigned to ALI SHER KHÁN, his nephew. There is a considerable stream between the district of *Kartákhshá* and the fort of *Soet*, situated in *Porakh*, a territory subject to *Ladákh*, and west of *Kartákhshá*, and east of *Soet*, situated also in the

* There are twelves passes leading into the valley of Kashmír Each of them is held by a Malik, or chief, who is responsible for their safety The Maliks derive the offices from the Moghals, who granted to them the territory in the immediate vicinity of the passes for their own support, and the pay of the guards necessary to their defence.

Porakh territory, there is another stream of nearly the same size. From the limits of *Kartákhshá* to *Ladákh*, a light *kasid* can travel in seven days, but a traveller with baggage requires ten days to make the journey. Fifth, the district of *Karkes*, which is held by YAQUB KHA'N, one of the AHMAD SHA'H'S relations *Karkes* is bounded on three sides by the *Iskárdoh* district, and on the fourth, or eastern side, by *Chílú*, which was originally included within the government of *Iskárdoh*, but about three years ago, the chief of it, named MEHDI KHÁN, revolted and setting the authority of the ruler of *Iskárdoh* at defiance, has entered into an alliance with the "Gelpo" or ruler of *Ladakh* As the Governor of *Chílú* is married to a niece of AHMAD SHÁH, the ruler of *Iskárdoh* is restrained by considerations of delicacy from attacking and reducing him to obedience The district of *Chílú* lies five days' journey distant to the east of *Iskárdoh* · and from *Chílú*, the *Ladakh* frontier is only one day's journey Sixth, the district of *Nagar* is situated in the hills, about seven days' journey to the north-west of *Iskárdoh*, and constitutes the Jagír of FIROZ SHÁH, a dependent of AHMAD SHÁH. From the town of *Nagar* to *Sirakol* is eight days' journey, and from *Sirakol* to *Yárqand* is the same distance Seventh, the district of *Randoh*, the Jagír of ALI KHÁN, the nephew of AHMAD SHÁH, which is reported to be much less elevated than other parts of the country, and the climate and productions to partake of the difference in elevation It is famous for grapes, and also produces rice, figs, and pomegranates, which are not found in other parts of the country Formerly, it was subject to the authority of AHMAD SHÁH's ancestors, but it was wrested from them during a period of anarchy by the chief of *Gilget*, in whose possession it now remains Beyond the fort of *Randoh* a journey of five days' is the territory of *Gilget*, in the possession of SULIMAN SHÁH Eighth, the district of *Hazúra* is the *Jagír* of the son of the ruler of *Iskárdoh*, and is bounded by *Kashmír* on the south

City of Iskardoh —The city of *Iskárdoh* appears to be situated in a valley of some extent. It is built on an isolated hill, bounded on two sides by the river Indus. From the south, the ascent by the road is about two and a half kos On the summit of the hill is the fort supposed to have been erected by ALEXANDER the GREAT It is now merely used as a citadel or station for a guard of soldiers. The residence of the ruler, together with some habitations belonging to his relations and dependents, is situated on a projection of the hill about half way from the top At its base runs the river, and on the other side of the river, about a kos and a half distant, lies another isolated hill, which is called *Barkh Kharah*, beyond which, in the same direction,

to *Baraldoh*, three days' journey from the capital, the country in general is of a level description. To the south of the city there is a plain about seven or eight kos in extent, which is covered with cultivation and gardens The other two sides of the hill of *Iskárdoh* are chiefly occupied by the population of the city, and the aspect of the country for a day's journey in those directions also is open and well cultivated.

Fortified places—There are several fortified places within the limits of the *Iskárdoh* territory, some are situated on the frontiers, and others in the interior parts Every fort has a separate jurisdiction The fort of *Iskárdoh* has already been described It is called by the natives *That Iskárdoh* and *Kharpúcheh*, which means the chief fort. At a distance of half a day's journey to the south of *Iskárdoh* lies the fort of *Shakar* *Shakar* is the chief town of any note in the province next to *Iskárdoh* It is situated in a narrow and well-cultivated valley, about 13 miles long The hill itself is about 500 paces high. There are several hills in its vicinity but none of the same height. The fort is supplied with water from the foot of the hill There is a stream running through the valley of *Shakar*, from the bed of which the people collect gold, the quality of which is stated to be superior to that which is found in any other part of the country. At the eastern end of this valley is a hot spring, where the Gelpo has formed a residence, to which he occasionally resorts *Kartakhshá* is also a fort of some note. It is situated on the Indus, in the vicinity of some high hills The country about it is said to be rugged and difficult, and the fort itself to be a place of some strength and importance, from its situation on the *Ladákh* frontier

Population, character, and habits of the people—No correct estimate can be formed of the population of the country. It is said to amount to three lakhs of families, which in all probability greatly exceeds the actual number The people are divided into several different tribes, but they are generally known by the name of Baldi Among them there is a tribe called Kerah, the members of which are enjoined by their religious laws to follow four ordinances, viz first, to destroy their female infants, second, not to tell falsehoods, third, not to desert their party in the day of battle, fourth, not to slander any one. The natives are described to be of a phlegmatic disposition, like other Tibetan tribes* They are a stout, well-made race of people, with ruddy complexions and good features, but have

* Asiatic physiologists maintain the opinion, that the temperament of man is affected by the nature of the animal or vegetable production on which he feeds; and the phlegmatic character of the inhabitants of little Tibet is accordingly ascribed to barley, millet, and fruits, being their chief articles of food.

little hair on their body, and scarcely any beard It is said, they are deficient in enterprise, and of a treacherous and designing disposition Barley, wheat, and flesh are the chief articles of food, rice is not generally used All those who can afford it are in the habit of drinking tea at their breakfast, and in the course of the day, it is usual with them, as with their neighbours of *Ladakh*, to greet their visitors with a cup of tea The use of this luxury is becoming more general than it was, though it bears a high price There is little variation in the dress of the people from their neighbours of *Ladákh* The wealthy classes generally wear *qábas*, (a kind of coat, with skirted margin all round,) and caps, &c, while the dress of the peasantry consists of *jamahs*, (another kind of coat, formerly much used in India) It resembles the vest worn by the Indian dancing girls, and is made of *pattú*, which is manufactured both of a coarse and fine quality, from goat's wool They wear caps of the same stuff* Cotton is not produced here It is imported from *Yarqand* to *Kashmír*, but very few people shew a desire to wear cotton clothes Their houses are mostly made of layers of stones and wood, with flat roofs, and are two or three stories high, with far projecting roofs, somewhat similar to those on the southern face of the Himálaya range

Religion, language, and means of exchange —The common religion of the people is Muhammedan, of the Shia sect, and the followers of the Imám Jáfar, but towards *Gilget*, there is a race of people which does not seem to possess any well-defined religious system some of them are idolators, and worship trees, while others, like the Hindús, do not eat the flesh of kine, and yet profess to be Muhammedans Tibetan is the common language of the country, but the people have no books in it They are beyond the influence of the Lámas, and receive their education, which is exclusively confined to the chiefs and priesthood, in Persian They have no system of coinage in the shape of rupees, pice, or kourís The only means of exchange known among them is in small pieces of unwrought gold, which is found in the country both in mines and in the beds of rivers.

Government, military establishment, and revenue.—The government of *Iskárdoh* is absolute, but the ruler Ahmad Sháh, who claims his descent from Joseph the prophet of the Israelites, is mild and benevolent, his title is *Ergh mayúm*, signifying the Lord of the mountains, but among his people he is called "Gelpo," or king, and his tributaries and petty chiefs, Ju He usually resides in the fort of Iskárdoh. It

* It is not customary to milk the goat in this country, which is supposed to add to the softness of the wool.

is asserted, that the dynasty of the present ruler has been in uninterrupted possession of the country for the last 14 generations He does not owe allegiance to any foreign state, being subject to none in tribute or service, but the Sikhs have attempted to extend their conquests beyond *Kashmír* in that direction, which has tended to excite his alarm and jealousy There is no standing army, the troops of AHMAD SHÁH consist of his vassals They are landed proprietors, who receive no regular pay, but are exempted from taxation in requital of military service Whenever an exigency occurs to render the collection of a force necessary, the ruler calls out the peasantry of the country, and forms them into a sort of militia He provides them with arms and ammunition, so long as they may be kept embodied, and when the occasion for their services is over, they are disarmed and dismissed The revenue of the state is collected in kind in the following form —one kharwár of wheat, one of barley, and one of mustard or millet are levied from each landholder Some of the zemindars pay their rents in one kharwár of ghí each, instead of the other three articles. A kharwár is about 40 seers in weight.

Extension of Sikh conquests in the direction of Iskárdoh —Lying between *Kashmír* and *Iskardoh*, there is a small territory called Kathaí About seven years ago, KIRPÁ RÁM, the Governor of *Kashmír*, sent a force of 500 men to erect a fort there The *Muzaffarabád* chief, of whom it was subject, opposed the design, but KIRPÁ RÁM persisting in his object, an action ensued, in which the Sikhs were defeated, 200 of them were killed and wounded, and the rest taken prisoners, who were converted to Muhammedanism After the action, the chief of *Muzaffarábád* advanced to *Bará mulá*, and reduced the Sikhs to take refuge in the fort at that place; but he was soon obliged to retire The Sikhs being reinforced, renewed the attack, and ultimately established their authority in Kathaí

Connexion with the Chinese frontier —The northern limits of Iskárdoh are connected with the Chinese frontier There are known to be three great tribes among the people of *China* one of them is called Manchu, from which the royal family is descended, another *Kara Khatai*, (implying black-colored,) which inhabits the eastern part of the *Chinese* empire, the third, *Tingani* these are Muhammedans, and occupy the country on its western frontier

State of the north-western provinces of China, with an account of the origin and progress of the insurrection which broke out in 1827, *to subvert the Chinese authority in that quarter* —*Kashghar, Yárqand, Khotan, Axu, Ilah*, and the country of the *Sarah Nashin*, generally called

Kalmaks, as well as five or six other extensive tracts of territory formerly belonged to the *Turkmáns* A long time ago the Emperor of China invaded these places with a large army, and seized them from the *Khojan,* who was then in possession of the government, and exercised both a temporal and spiritual authority over his people. In the course of the war, many of the Turkmán chiefs, as well as the Khojan himself, fell into the hands of the Chinese, and were put to death, while the rest of the royal family, among which was the eldest son of the Khojan, who took the title of his father, sought an asylum with the ruler of *Indajan,* where they remained waiting a favorable opportunity to recover their country. The Emperor of *China* offered 700 *Zambus,* (silver ingots, weighing about 150 Rs each,) to the *Indajan* chief, if he would prevent the escape of the Khojans About three years ago, when the Khojan was still at *Indajan,* the Chinese force stationed on the frontier was withdrawn towards the *Kara Khatai* country. When the Khojan heard of the departure of these troops, the ruler of *Indajan* let him loose, and the Khojan collecting a party to Kirkpiz, whence he sent a man to *Kashghar,* to ascertain the disposition of the people, they replied that the Chinese force had gone to *Kara Khatai,* and he had only to come and possess himself of the whole country. According to their invitation, the *Khojan* marched towards *Kashghar,* where, no sooner had the Khojan made his appearance, than the people declared in his favor, and rose against the Chinese, about 8000 of whom were sacrificed to their fury The Aubu or Chinese governor of the province destroyed himself by gun-powder As soon as the news of the occupation of *Kashghar* by the Khojan reached the ear of the governor of Yárqand, he announced the event to the Emperor, by means of lighted balloons, which were set off and repeated at every stage, until the information reached its destination The Emperor returned a reply in the same way This mode of conveying intelligence was never adopted by the Chinese authorities The Khojan succeeded in recovering *Yarqand* and *Khotan,* and every one who was suspected of being in the interest of the Chinese was immediately killed, but the Khojan met with some resistance in his attempt to occupy *Axu, Ilah,* and the *Kalmak* territory, in consequence of the presence in them of the Chinese garrisons, and their vicinity to each other Reinforcements were sent also from China to *Kashghar,* and after the lapse of a year, the Chinese succeeded in dispossessing the Khojan of his acquisitions; and making a prisoner of him, they confined him in a cage, and led him captive to the Emperor His fate is not exactly known, some say that he who has been carried into captivity

is not the Khojan, that the Khojan himself effected his escape to *Indajan*, and is now alive.

The tribes of Kashghar, Yárqand, and Khotan, and the part they took in the insurrection —The population of *Kashghar, Yarqand*, and *Khotan* consists of two tribes, the one is called Aghtaghlaq, and the other, Karataghlaq When the Chinese troops arrived for the recovery of *Yárqand*, the Aghtaghlaqs were all on the side of the Khojan, in revenge of their adherence to whom the Chinese authorities slew all their males, gave their females and children to their own countrymen, and sent them into distant parts of *China*. Of the *Karataghlag*, such as favored the Khojan, were killed, and the rest set at liberty

Commercial operations of the Russians on the Ilah frontier —About a year and half ago, a report was received of the Russians having taken *Kapchaq*, and arrived at *Ilah*, which is a great entrepôt of commerce. Between Ilah and the Russian frontier post is an extensive lake, on the border of which the Russians are stated to have established a fort, and to have built a town in its vicinity. Not wishing to be involved in hostilities with the Russians, the Chinese are said to have paid them a large sum of money to purchase peace The chief of *Ladákh* has informed the Emperor of China, that the English are constructing a road to *Kaughri*, which is situated near *Ispitti* On the receipt of which intelligence, the Emperor sent a Zandu, or personal inquiry, to Aizeng, to watch the state of affairs in that quarter, and ordered at the same time, his garrison of *Rodokh*, which is 12 stages from *Ladákh*, to be reinforced by a large force

Opinion of the people of Iskárdoh of the power and authority of the Emperor of China —It is said, that the Emperor of China has 3000 Zandu in his service, and that whenever any affair of importance occurs, one of them is dispatched to settle it They enjoy great confidence, and supersede the authority of the Aubus or governors, where they may happen to be sent If at any time he should suspect or be dissatisfied with the conduct of the Aubus, he deputes a Zandu to look after him, they are his most confidential agents, and possess high influence in the state Wherever a Zandu is, his acts are supreme, and no one can dare dispute his authority

Articles imported from Russia.—Twisted gun barrels, Bulghar hides, cast-iron vessels, horses

Imports from Yárqand and Kashghar.—Colored cotton piece goods, scarfs, salt, China silk pieces, tea, and *China crockery-ware.*

Exports —Unwrought gold, *zard alu* (apricots), and other dried fruits, rhubarb, asafœtida

II.—*Journal of a Tour through Georgia, Persia, and Mesopotamia By Captain* R MIGNAN, *Bombay European Regt. F L S and M R A S*

[Continued from page 590, vol III]

After arranging our baggage, and paying the boatmen a tomaun, which is equivalent to 12*s* 4*d* , we directed our course due south, and soon arrived at the gates of Meandáb or Meandow On entering the town, we passed through filthy lanes, bordered by mud walls, scrambled over ruined huts, and descended deep pits, that furnished materials for new ones, till at length we gained a lofty dilapidated wall, enclosing the principal dwellings, and entering the gateway, passed through a miserable bazar We looked in vain for streets, much less decent buildings, (a few ants' nests presented themselves,) until we were conducted to the houses of some wealthy merchants—these were most carefully concealed from view by high mud walls of the most wretched appearance, and encircling them were the huts of the poor artisans and cultivators Although night was fast approaching, no lights were seen in any quarter, except the bazars, which were in fact, the only thoroughfares that deserved the name of streets

We took possession of a large house, the property of one JÁFAR KU'LI KHÁN Its rooms were capacious, its walls white-washed, and what is very uncommon in Persia, its height was nearly one hundred feet This edifice was fast crumbling to decay, and upon its summit great numbers of storks had built their circular nests of reed The natives of the place called them "*Hájı Lag-lag,*" the former title, from their making a yearly pilgrimage to the level countries during the winter season, (*yea, the stork in the heaven knoweth her appointed time , Jeremiah,* viii 7,) and the latter, from the loud clattering sound made by its long bills Although these birds are considered unclean, (*these are they which ye shall have in abomination among the fowls, the stork and heron after her kind , Leviticus,* xi 13, 19 ,) yet, they are marked by qualities of an amiable nature, and so attached to house-tops, they appear under no fear of being dislodged Indeed the natives entertain an idea that they bring a blessing to the dwelling on which they build, and in Egypt, they are held as objects of veneration BRUCE in his travels, remarks that it was a great breach of order to kill any of these birds in Cairo, and ALI BEY mentions an extraordinary establishment at Zez for the treatment of lunatics "it is very strange that great part of the funds has been bequeathed by the wills of various charitable testators, for the express

purpose of nursing sick cranes and storks, and burying them when dead"—(See Travels of ALI BEY)

Meandáb is on the frontiers of one of the most remarkable regions in the world—Kúrdistán, the Switzerland of the East—an immense succession of hill, valley, dells of exhaustless fertility, and mountains towering to the height of Mont Blanc The top of the great range of Zagros rises upwards of 12,000 feet above the level of the ocean! The oppression and cruelties it has endured, the vengeance it has inflicted upon its Turkish and Persian neighbours, and, above all, its acquisition of independence these circumstances together invest this country with a peculiar interest The geographical division of Kúrdistán is nearly as follows

Kúrdistán proper, comprising the country lying between the degrees of northern latitude 35 and 38, and longitude 43 and 46,	Inhabitants,	250,000
Ardelan, .	Do .	150,000
Adiabene, ...	Do	100,000
Total, .		500,000

Of this population, at least four-fifths are Kúrds, the rest are Christians and Jews The mountainous regions have at no period been under the Turks or Persians The horse and the sword had made them masters of the plain, they became feudal possessors of the territory under the tenure of service to the SHÁH, and held the remaining Kúrds as cultivators of the soil But thousands removed to the security of the mountains, and as the Turkish or Persian chain became heavier, they flung it off, and joined their free countrymen. The vacancy produced by this flight has never been filled up, though large emigrations have entered the country, and in whatever quarter they settled, they have been hardy, active and intrepid

Turkish oppression, on the one hand, and Persian, on the other, has been so directly the source of the chief defects in the Kúrdish character, that in proportion as that fatal influence is weakened, so rises the national character Its nature is so elastic, that it springs up, even in every momentary removal of the pressure, but its true displays are to be found where the tyrant dares not come The greatest contrast to the inhabitants of the plains is to be found in those mountainous retreats where there are no foreign inhabitants Here the Kúrds are hardy and heroic, passionately fond of their homes and country, and subsisting on little The picture has its dark side. They are inconstant, envious, and treacherous But it must be remembered, that these defects would be the natural qualities of any people leading such uncertain and distracted lives. In his most

inaccessible hold, pent up amid wild tracts of country, shut out from general communication, liable to frequent and sudden inroads of a merciless enemy, and from his cradle to his grave, either the spoil or the antagonist of the oppressor Poverty, suspicion, loneliness—a life of hazard—flight or attack—what original constitution of virtue could have attained its true stature? There is no national character that would not have darkened under this perpetual rudeness of fortune. It is really astonishing that the Kúrd retains any qualities entitling him to rank among men

For several centuries Kúrdistán has been a continued scene of war, turbulence and robbery Some of its eastern districts have remained in the power of ABBÁS MIRZÁ, whose force has never been able to reduce to subjection the various chieftains in the north and south, who claimed a predatory independence The form of the country, indeed, is sufficiently favorable to such pretensions, being intersected by mountainous tracts, over which it is extremely difficult to conduct an army The Eliáts, or wandering tribes, roam over its extensive plains, and the Persians, from Azerbiján, have long carried their ravages not only over the frontier, but into the heart of the country, over its ranges of hills, and to the gates of its towns The desolation and want of security can hardly be conceived, when occasioned by these ravages In some tracts, the whole open country has been swept, the inhabitants having been put to death, or carried away as slaves The consequence is, that numerous small towns, particularly near the frontiers, have been abandoned, as well as all cultivation. The peasant goes out to his labour with his matchlock slung over his shoulder All intercourse between villages is carried on with the greatest timidity, and at intervals, when a sufficient number of men can be collected to form a káfilah, and to resist the bands of robbers, even these are frequently attacked, and the merchants and travellers composing them not only plundered, but detained in captivity, or murdered This state of things has given rise to extensive dealings in slaves.

The tribes which range the deserts differ in their habits, according to the circumstances in which they are placed. In some parts they are pastoral, hospitable, and kind to strangers, in others, they are reserved, and shun all intercourse, in others again, predatory, cruel, and ferocious Those of the latter description are to be found near Lake Van, and in Armenia, towards Erzeroum*. We find them to the north, on the

* As a proof of this, I may mention the recent murder of M SCHULTZ, a distinguished antiquarian and indefatigable traveller. This melancholy event

borders of Georgia, plundering villages, committing outrages, attacking towns, and carrying off Georgian and Circassian girls On the south, they dispose of their captives, to the traders who supply Bagdad and other Turkish cities, and on the east and west, are found the wild mountaineers, who are not naturally cruel, but obliged in self-defence to assume a fierce character This effect can only be ascribed to the distracted state of Kúrdistán, and its inability to afford security to the people.

April 5th —My muleteers were slow and reluctant to load the mules this morning, having heard during the night that the Kúrds of these parts were a most desperate set, caring for neither God nor devil, that they never took off their boots from one year's end to another, much less prostrated themselves in prayer, that in fact, we should starve by entering the country, as it would be impossible to hold any communications with them With little difficulty I convinced them in some degree that these opinions were erroneous, and we quitted Meandáb, directing our course south-east, over a plain surrounded by argillaceous mountains We then struck into a deep valley, profusely covered with coarse weeds and herbage, and through which flowed a stream formed by the melting snow When we got half way up this valley, we saw several Kúrdish encampments on our right They appeared very meanly built, chiefly of mud. they were low, having only one small door to admit light and air, and were roofed with a thatch of reed There were others formed of two stone walls, with a covering of goats' hair cloth. Although our people were dying with thirst, they would not stop from the fear of being plundered, I, however, rode up to one of these encampments, and was served with *lubbon*, which is a very refreshing beverage. After this, I rejoined the baggage, and we continued to pursue a southerly course, and passed a large body of Kúrds, whose extraordinary dress and appearance, so different from that of the Persians whom we had been accustomed to see, gave a novelty to the scene that was extremely interesting Their arms, their habits, the furniture of their horses, resembled those of the Turks, but they possessed

took place near the village of Bash-Kullah Sir JOHN KINNEIR immediately sent a confidential person to the spot to collect, if possible, the traveller's papers and effects, and to take steps for the punishment of the murderers The loss of this intelligent traveller is one of the greatest which oriental literature has ever sustained, it is to be hoped, that the larger portion of his manuscript collections had been received in France, and that those which were in his possession at the time of his death may yet be recovered so that the fruit of his extensive travels and laborious researches may not be lost to the world

a wild ferociousness of air, which is highly characteristic of their wandering life This interesting group would have been a fine study of costume for HAYTER's accurate pencil Two of this party joined us, and in a mixed dialect of Persian and Arabic, asked me if I was not going to Sulimániah, for, said they, "we are anxious to visit that city, to pay our respects to SU'LIMAN PASHA, and if possible, to obtain his head for a *foot-ball*" Not liking the appearance of these cavaliers, I was determined to try at an escape by a *ruse de guerre*, so exclaimed, with a feigned astonishment, "Sulimaniah! then, I have been misdirected, I am bound for Hamadán, and find I am wandering from my way!" This had a proper effect, for they faced about, and joined their companions. We rode for nine farsangs through a country remarkably well cultivated The valley we had entered presented an inclined surface to the west, from ten to fifteen miles broad, including the skirts of the hills on either side, little interrupted with irregularities, and all capable of the richest culture though a great portion lay waste, but the villages were so thinly scattered over it, that it was surprising to see the extent cultivated. The whole soil of the valley was of a fine light-coloured clayey loam, its surface being slightly diversified by hillocks, chiefly artificial, the sites of old villages A stream of no great natural size, but at this time swelled by the dissolving snows, glided through it, and the hills undulated and retreated into small plains, which were luxuriantly cultivated I was told that these glens produced wonderful crops, with the aid of a little artificial irrigation. The main valley appeared less productive, but sufficiently so to prove the existence of great fertility of soil, and human industry Few parts of Persia could equal it As the inhabitants of the villages are both shepherds and cultivators, they were at this time ploughing the land. During summer they descend to reap the harvest, and leave their wives and children in care of their meadows, and the flocks that graze upon them.

Continuing our route, we passed through an irregular and winding ascent, which brought us to the village of Bogám, situated on the bank of a small rill, which ran into the river Jakuntú Nothing could exceed the appearance of poverty which prevailed throughout the place, or the want of comfort and security This is doubtless to prevent the excitement of any cupidity, for even this appearance of squalid misery does not protect the inhabitants from oppression, nor in this neighbourhood are they ever free from the incursions of the Persians It was only the other day, that JAFAR KU'LI KHÁN, the governor of Marangha, was ordered by Prince ABBÁS MIRZA to

render this part of Kúrdistan a desert, and to destroy by fire and the sword all the hamlets and their inmates that might cross his track. The Prince's order ran thus "Hang the men upon the trees, and tear them asunder, rip up the women, and tread over them." Upon his approach, the inhabitants flew to the adjacent mountain gorges, and over summits which, as the Persian poet observes, "were never trod by human foot, and scarcely ever by the wild birds of heaven." The order was obeyed in regard to this village, which is now little better than a heap of ashes Two short years have only passed since I was here on my homeward route, and then Bogám was a flourishing little town

Not being able to procure forage for our cattle, or even refreshment for ourselves, we departed hence before the dawn of day Mirady, the object of our march, lay at a distance of thirty-five miles, and the road appeared unusually rugged About noon we reached a lovely plain surrounded by mountains. Spring had already strewed the ground with her richest bloom, and the brightness of the sky, together with the picturesque appearance of the country, filled the mind with delightful ideas. A serpentine stream meandered through this delicious spot, and the most beautiful lawns diversified the scene. At length we came in sight of the village, and were soon received by its chief, who ordered his women to give us the best room in his cottage They busied themselves with great humour in clearing away their domestic utensils, and lighted a bright fire for the evening. These women were fair and handsome, they had black eyes, and long dark hair, low in stature, with delicate features The children of both sexes had fine ruddy complexions, though of course they soon contract a tawny hue The women of this district appeared very industrious, and always were seen assisting in the toils of agriculture, and on no occasion did they conceal their faces, but went about entirely unveiled; though it was considered a mark of impoliteness to stare at them, nevertheless, they appeared highly gratified at exciting our attention, and we clearly perceived that vanity was the characteristic of the sex in this, as well as other, countries

After being served with delicious cheese made from the milk of sheep, and some excellent flat cakes of bread, the chief of the village invited me to his home On entering the house, I saw three or more men seated in a corner of one of the rooms, with some rude-looking instruments resting on their laps. One resembled our flageolet; another, the guitar, and a third, the kettle-drum A signal being made, one of the men advanced, and seating himself in the

centre of the room, sung a wild air, which was neither pleasing nor melodious After this, two boys got up and danced, placing themselves in a variety of extraordinary attitudes, which consisted principally of gesticulation The old chief said, he considered dancing both mean and ignoble, as it was practised by none except such as make a trade of it for hire But he must have spoken ironically, since the moment they were done, one of the boys presented me with a chibouque, and was very officious, which intimated, that a recompense was expected for the evening's amusement

April 7th—After taking a hasty meal, and smoking a chibouque with the chief of the village, we continued our way south-easterly, through a glen, where it was refreshing to observe the quantity of cultivation that appeared on every side On entering a larger valley, a great extent of meadow land was observed, as well as several hamlets. Here also, for the first time, did we remark wood in any considerable quantity upon the hills on our right, which were a ramification of the great Zagros range The trees were bare of leaves, which made it difficult to determine their species We now entered a thick jungle, intermixed with rocks, and matted over by creepers This spot I can never forget, for we were amid an endless variety of forest scenery The masses of shade thrown down from the naked and fantastic crags that burst abruptly forth, the luxuriant fertility of the mountains, seen through the transparent clouds that floated along below their forest-crested summit, the awful stillness, and the immensity of individual objects, were pregnant with delight and amazement I have often gazed amid these wilds, while beauty after beauty bore in upon my eye and mind, till I have turned away with a painful fulness at heart, and if my delight were more than was fit for the frame that felt it, I sometimes really thought there must have been some deleterious power in the air breathed in these scenes, until I remembered their palpable and irrefutable beauty I looked upon the present prospect as if I knew I should never see it again The snow-capped mountains were towering before us, the sea of forests spreading around, far below, a beautiful stream rippled in the sun, and sent up the music of its plash! The small Muhammedan sepulchre, overshadowed by the tamarisk, crested the banks on the opposite shore, whence streams spread through the bright green land they fertilized, to where a bulwark of hills rose to the clouds beyond the white summits of Mount Zagros.

To clear us from this wooded bower, we hired a shepherd, who appeared to have returned from the plain we had crossed in the morning The man performed his task faithfully, being allowed no

temptation to do otherwise, and from his knowledge of the road, greatly shortened our distance During the march, we frequently passed parties of ill-looking fellows, who were travelling to the town of Ouroomia, and whose inquiries about us, as they greeted our guide, excited something more than my curiosity I therefore asked him, if those people would have lightened our cattle of their loads, had we been less prepared? "Of course," he replied, "and *we* of our village would do the same—we none of us scruple, when fair opportunities occur" This avowal, uttered with the greatest *sang froid*, evinced a resolute principle of rascality, but as we afforded no "fair opportunities," we got on famously together, till the necessity of our acquaintance ceased We passed an extensive encampment of Eliáts under some overhanging rocks their wild appearance, mingled with horses, asses, oxen, and sheep, were admirably characteristic of the place, as they met the eye, gathered together in groups around a fire, which emitted its thin spire of smoke Had *we* known of their vicinity, we should certainly have endeavoured to pass by a circuitous path, and had *they* been apprised of us, our property would not perhaps have remained unmolested They were very inquisitive, demanded, whither we were travelling, talked both loud and long, and endeavoured to persuade us to remain for the night under the protection of their tents The scenery around us became so singularly wild, that I regretted the approach of night. Our progress was often much impeded by the thickness of the wood, but on descending towards a small village, which appeared in a retired nook of the opposite hills, the cliffs grew more majestic, the precipices more lofty, and the forest more beautiful On reaching the enclosure of the village, we were forced to remain a long time in waiting, before any shelter could be found for us, and after all, to take possession of a hut, hastily emptied for the occasion, full of dirt and vermin Every thing was in confusion, and our foolish Muhammedan, instead of exerting himself, stood like a drunkard biting his whip, without ever offering the slightest assistance Our evening meal was late and cold, and we retired to rest as little pleased with ourselves, as with our attendants Next morning the inhabitants came in a body to assure us, that it would be impossible to cross the mountains without lightening the mules, and that even then, the passage would be extremely difficult. I thought this a mere pretext to obtain some money, so refused to employ them in any manner However, they knew the state of the road better, and following the muleteers, soon convinced us that their services were indispensable. The morning was excessively cold, and as we approached the mountains we had

to ascend, the cattle wound through a sort of rut, or channel, worn in the solid rock, where the width barely allowed us to pass without touching its sides, so that we were frequently obliged to hold up both feet in a horizontal direction, level with the animal's back, to prevent their being bruised between its sides and the rock, which could not be avoided by any other mode On reaching the base of the mountain, we found that it was extremely precipitous, and consequently were obliged to indent upon the villagers, who triumphantly came forward, and assisted in supporting our cattle The ascent, which was circuitous and abrupt, occupied the space of four hours, and proved so distressing to the mules, that they were forced to be relieved of their loads This appeared to assist them very immaterially, as huge masses of snow lay in ravines in every direction, and they sunk to the girths at each step, when, in endeavouring to rise, two of them rolled down the precipice with their loads, which consisted of dead bodies *en route* for Kerbala. On nearing the summit, the road was so terribly furrowed by the dissolving snows, that its ascent became nearly impracticable The difficulty of this passage was heightened by the conduct of a body of Kúrds, who from the top had been watching our approach, and now commenced hurling large stones upon those bearing our baggage My muleteer, who had been quaking for the safety of his mules, became much alarmed. "Stakhferallah!" he exclaimed, "there's enough of them, to be sure!" "Never fear, I replied, by the help of Allah, and the Prophet, we may check their fury" "Had we only a dozen brave Kazilbáshes, with their matchlocks and swords, you might then talk so, but now," said the old monkey-faced muleteer, "I fear I shall become a beggar, nevertheless, Allah-hu Akbar!" By this time our trunks had been thrown down in the snow, and the fray commenced with huge crooked sticks, sabres, and matchlocks, mounted with prongs, resembling a hay-maker's pitch-fork The enemy soon lost the support of four of their party, who were conveyed away wounded, and the majority of the rest in all probability would have willingly given up a contest in which so little was to be gained. But there were among them some of a determined spirit, who urged on the rest to revenge their wounded companions, and exerted themselves successfully to inspire them with confidence My pistols being loaded, I went amongst them, and threatened to shoot the leader, when they cried out with surprise, "They have guns" This appeared to cool their rage and determination, and on their retreating to the edge of the mountain, we succeeded on rolling them over its side, while the snow shelved down upon their heads, and nearly buried

them. The Memándár, who had hitherto remained an inactive spectator of the scene, approached me, bowing respectfully, and said, "Bárik-allah! Mash-allah! may your shadow never be less; may your servant find grace in your eyes!" but instead of noticing his nauseous expressions, I ordered him to return to his country, as his services were dispensed with The success of this *debut* gave animation to the old muleteer and his assistants, who exclaimed, "Pundh-be Khodah," and recited a passage from the Qorán, in which the words "La Allah il Allah, Muhammed Rasúl il Allah," were very frequently repeated

After a most laborious descent from the mountain, we traversed its base in a southerly direction, passing on our way a ruined caravansary, from whence the Kúrds had issued; thereby converting into a place of molestation to the traveller, what had been erected for his accommodation This mountain terminated in a sharp point, after rounding which, we entered upon well cultivated land, extending to the village of Bannah. Two miles to the northward of this place, we crossed a considerable stream of water, and near its bank several extensive burying places were situated These places of sepulture were at a considerable distance from any town, and the graves were all distinct and separate, each having a rough block of stone placed upright, both at the head and feet, while the intermediate space, instead of having a slab placed horizontally, was either planted with flowers or covered with broken pieces of tile Some few graves had circular rooms, with cupolas built over them, which being kept white-washed and ornamented, exhibited an excellent comment on the expression of our Saviour, when he compares hypocrites to "white washed sepulchres, which appear outwardly beautiful, but within are full of dead men's bones and all uncleanness" The funerals of the Kúrds have a reference to those of the Hebrews How earnestly does the patriarch Jacob enjoin his sons to bury him in Canaan, in the family sepulchre, and Joseph, in like manner, exacts an oath from his people, to carry his bones with them when they leave Egypt. If a Kúrd dies at a distance from his native village, the inhabitants are bound to remove the corpse, and inter it with decency I have often met a party escorting one who was never more to smile or weep in this mortal world, and on conversing with them, they dwelt upon the disgrace and ill-luck which would be attached to him who neglected to bury a body in its "proper place of rest" We observed graves decorated with garlands as among the Welsh, which are removed at the end of the mourning. We reached Bannah at night-fall, nearly exhausted by fatigue and hunger, and assembled round a

blazing fire in the Sheikh's house, where some excellent coffee was ready to be offered. I have often wondered how these people could have lived before the discovery of this beverage, the champaigne of the East In the most desolate Khan it is handed around, and if you refuse to carry it to your lips, you are considered to be displeased with your accommodation, or at the behaviour of your attendants

In the room next to the one we occupied, three Turks were reposing In the course of the evening they requested I would share a pipe with them After smoking together for some time, one of them said "We have just arrived from Bagdad, and are travelling *Chuppar* (post) to Tabriz Where are you going? Have you got any money? Are you a Russian spy? Perhaps you wish to enter DAOUD PASHA's service "He has already a Feringhí (alluding to Mr LITTLEJOHN, formerly Adjutant of H M 's 2nd or Queen's Royal Regiment,) instructing the half-starved Fellahs how to put themselves into a number of odd positions" One of his companions interrupted him, saying, "He is not a *Feringhí*, but one of the *Ingrése* from Hind, and a sharp fellow too, though I don't like to see these changes, or we may all be turned into the great desert" I asked what had occurred at Bagdad? The Turk raised his head, and without ceasing to attend to a large coffee-pot which was on the fire, began, "By my soul, DAOUD PASHA, our master, will soon have no more Tchocodars, he prefers the Giaours to us already! What shall we do if the Pashas and Aghas are able to eat us as they like? We must all fly to these mountains, and become Kúrds! Our Fellahs are all discontented, the taxes of the unbelievers have been increased, and perhaps even Mussalmans will have to pay them Those Muscovite dogs have revolted against the Sultán, because he would not make their Sheikh a Sultán also Even the Ingrese will soon compel the true-believers to chastise them, as I have heard say they now refuse to pay tribute, and even MAHMOUD himself is more like them than a true believer. He likes their ways better than his own God is great, he knows if these changes are for the better and as to that son of a dog MUHAMMED ALI PASHA, who has done it all, may Allah grant that his eyes may burst" "Inshallah, Inshallah," shouted his companions, who considered their friend's speech a very eloquent one

On our quitting Bannah, the temperature became more moderate, the country was hill and dale, and the whole one continued coat of verdure From hence the sloping sides of the mountains were covered with oak trees, and to us, who had been accustomed to the arid hills and mountains of Persia, it was a luxurious prospect The road afterwards wound through wild and rocky defiles in the moun-

tains, and by the side of a rapid torrent We followed its rills, which were beautifully fringed with willows, presenting to the eye a pretty appearance. It is this plentiful supply of water which renders these tracts so fertile, while in Persia, this inestimable blessing is the most scanty of nature's bounties The plains and hills are also equally destitute of wood—a few trees only being planted in the environs of cities, chiefly, if not entirely, for the purposes of building So great and manifest are the natural advantages of Kúrdistán, that the verdict of all travellers is unanimous in commending the fertility of her soil. But since the beginning of that time from which we have any authentic records of her history, wars, dissentions, and violent distractions, have scared away improvement, and Kúrdistán is still

—— "An unweeded garden
That grows to seed."

In ascending a very abrupt mountain, the mules had to walk literally upon the edge of a precipice, where the least false step would have consigned them to inevitable destruction yet the confidence of the muleteers in the steady tread of these animals was such, as to make them trot on without the slightest apprehension From the top of the mountain a most sublime and extensive view presented itself. Immediately in front of us appeared the snowy ranges of Mount Zagros towering to heaven, and beneath them several beautiful valleys and plains extended to the base of the mountain we were commencing to descend, while on either side, and in the rear, were hills of various elevation, without assuming a bare or barren appearance. Had I seen this picture of nature upon canvas, I should at once have pronounced it a production of the imagination. Here was an assembly of natural beauties, precipitous mountains, rich valleys, clear brooks, fantastic rocks, and wooded crags! Man alone has steeped it in gloom, and rendered its inhabitants a desperate people. But Kúrdish history is one of suffering, and well may I address that beautiful country in the feeling language of the poet—

Oh tu! cui feo la sorte
Dono infelice di bellezza, ond' hai
Funesta dote d'infiniti guai,
Che in fronte scritti per gran doglia porte?

Without any exception, I may safely aver that Kúrdistán is the loveliest country I ever beheld. The passes over its mountains are of the highest interest to the traveller, as they offer opportunities of observing portions of the globe, which must from their nature have been in their present state since their creation In their recesses, he may observe from the wonderful and varied position of their stratifi-

cation what have been the operations of nature on the grandest scale These passes are in truth the most sublime and solemn solitudes that can possibly exist, and rouse the breast of man to meditations bordering upon rapture Uninterrupted by the intrusions of the world, he can hold converse with his God in the midst of his most awful works—

> To sit on rocks, to muse o'er flood and fell,
> To slowly trace the forest's shady scene,
> Where things that own not man's dominion dwell,
> And mortal foot hath ne'er, or rarely been,
> To climb the trackless mountain all unseen
> With the wild flock that never needs a fold,
> Alone o'er steeps and foaming falls to lean,
> This is not solitude, 'tis but to hold
> Converse with nature's charms, and view her stores unroll'd

On arriving at the base of the mountain, we descried the wide prospect of the windings of the Bostán river, that issues from the Carducian mountains Bostán, being interpreted, signifies the "garden," and gives its name to a small hamlet and valley situated on the southern bank of the river—a denomination well due to the whole of the surrounding country Its hills are clothed with wood, its villages embosomed amongst trees, and its fruitful soil reminded me of countries where man is, "like a tree planted by the rivers of water, that bringeth forth his fruit in season, whose leaf shall not wither, and whatsoever he doeth shall prosper"

Independent of these lovely valleys and plains which display the most abundant fertility, the mountains in general possess a soil of considerable depth, and the wild luxuriance of unforced vegetation proves their productive qualities. The order of cultivation appears to be thus the plains and valleys are appropriated to grain, the southern slopes of the hills form vineyards, the northern produce the oil and tobacco plants, and on the summits and inaccessible crags the goats and mountain sheep browse upon the heath, while oxen, horses, and cows, graze upon the pasture that skirts the villages. Wheat and barley are both plentiful and cheap, grapes are not so richly flavoured as the Persian, but cherries and other stone fruits are the finest I ever ate The Kúrdistán walnut is the largest in the world, and nearly all the European fruits are very abundant. The cattle are small, but of the best breed, and so are sheep and goats They all sell cheap, as well as horses, which are proverbial for performing the most astonishing journeys Sir John Macdonald Kinneir assured me, that he had ridden a distance of seventy miles over this mountainous country without once dismounting from his horse, and in June, 1828, I purchased a gelding at Bagdad, that carried me to

Tiflis in sixteen days. The distance is nearly a thousand miles! The cows yield about half a gallon of milk daily, and the sheep and goats assist to supply the dairy cheese being always made of their milk. They use the wild artichoke to turn the milk, and their cheeses are made up into small round cakes Their butter is well flavoured, but not of much consistency It is churned by putting the cream into a goat's skin suspended to the side of a tent, and tossed to and fro The Bedouins practise the same method "Dans un peau de chévre, encore garnie de ses poils ils mettent le lait, comme dans une outre Une femme Bedouine après avoir fortement noué les deux bouts, et suspendu le tout à une branche d'arbre, en secouant l'outre de toute sa force, parvient à faire le beurre"—(*Castellan Mœurs des Ottomans, t* 6, *p* 60.)

Several tribes have five thousand sheep they seldom kill any, but subsist chiefly on milk and butter. Hence, the number is continually increasing

The Kúrdish villages, although small, are very numerous, and all built in the same style, of large unhewn stones, which have no binding material They consist of an outer and inner room only, having a floor, and walls plastered with mud, and a roof formed by cross beams of wood, covered with reeds, or straw matting, and over that again, a thick covering of mud. They are generally seated upon the declivity of a mountain, and some idea may be formed of the steepness of their streets from this peculiarity of position, that the top of one house forms an exact level with the bottom of the one above it, and each house having a door that opens into this space, the roof of one dwelling forms a level walk for its next, or upper neighbour, where the inhabitants sit to enjoy their chibouques We remained the night in one of these hamlets, and left shortly after day-break for the capital After descending with great abruptness for ten miles, crossing several mountain torrents that wriggled over our track like serpents, we entered a gorge in the mountains, and commenced our ascent up the wildest mountains I had ever seen. The morning was unusually sultry, and during our journey, a dreadful storm of hail and sleet, accompanied by thunder and vivid lightning, broke upon us We were soon enveloped in a thick mist, which brought to my remembrance the situation of the ten thousand Greeks under ZENOPHON, during their ever memorable retreat over these very mountains They were hid from the enemy by a *mist* similar in density to the one we here experienced, for it was with difficulty we could at times discern objects at ten yards' distance. Having reached a considerable height, a sublimely vast extent of

mountain, ravine, and glen lay exposed to our glance; but were quickly obscured by the passing clouds It was now easy to discover, without the help of any barometer but that of our own feelings, that we had reached a great elevation—a fact which was proved by the successive risings of hill over which our road was directed Still ascending, we came to the extreme summit, from whence we saw the city of Sulimániah marked by trees in a nook of the mountains. It appeared beneath our feet, although we were full ten miles from it In fact, from this lofty pinnacle, we seemed to descry at once "all the kingdoms of the world, and the glory of them." Our descent was one of extreme difficulty, but our eyes were delighted with the general aspect of the valley below, and the situation of Sulimániah at the end of it The hills by which it was surrounded on all sides were sufficiently broken in their outline to be picturesque, and the plain which skirted them at their feet was clothed in the richest verdure The grain-fields assumed a lovely appearance, the gardens occupying distant portions of the valley, and a stream meandering through it, gave such a luxuriance to the picture, as to unite beauty with fertility, and wealth with usefulness

On nearing the city, a mound of considerable magnitude rises on the left of the road, which nearly resembled the *tumuli* in Greece It is not improbable that the spot may mark the tomb of some Greek general Many similar may be seen in Kúrdistán, which nearly resemble those in Wiltshire Indeed, such remains of antiquity are spread over the whole surface of the globe

Sulimániah, or Sulimáney, the Shehrazour of the ancients, is most romantically situated on the northern bank of the river Diála, in a deep valley, irregularly formed by the bases of the Carducian range, which, covered with forests of oak, and clothed in snow to its summit entrench it on every side Its geographical position is 35° 30′ north latitude, and 44° 45′ east longitude During the retreat of HERACLIUS this city was distinguished by the name of Siazuros, and not far hence was the city of Holwán, the retirement of YEZDEJERD after the battle of Cadesia, a spot to which the Khalifs of Bagdad resorted during the summer season. It was ruined by HULAKO, and has never since recovered its consequence.

Sulimániah is an unwalled town its houses are built extremely low, which gives them a mean appearance, though doubtless they are better secured against the snows and cold of this elevated region. The streets are narrow, and run irregular, and there are neither good bazars nor fine mosques to relieve the dull monotony of the common buildings The houses are mostly built of unhewn stones,

plastered over with mud, though some few are constructed with bricks. The climate is said to be very fine, and the inhabitants, who approach to the number of 20,000, are robust and active their aspects forbidding, their expressions of countenance harsh, and their complexions dark The government of Sulimániah is in the hands of a Pasha, who is by birth a Kúrd, and subject to neither Turks nor Persians His name is SULEMÁN, and he is highly popular and very indulgent For the purpose of pleasing the Russians, he sends an annual present in cash to ABBÁS MIRZA, who the northern barbarians hope will soon employ their officers in preference to those of the English. Count PASKEWITCH is desirous of taking the Kúrds under his *especial* protection, that in case of need, they may harass by their sudden and repeated incursions the inhabitants of those countries by which they are bounded For such a duty they are eminently fitted The military force for the defence of the town does not exceed 2000 men About a fourth of that number are frequently in attendance at the palace, which is the Pasha's residence It is a mean and ruined pile, composed of spacious courts and extensive inclosures The trade of Sulimániah is in a very declining state, there are only two or three Armenians, agents for some Bagdad merchants, who receive gall-nuts in exchange for a few Indian commodities, which come up by the way of Bussorah

Nothing is known of the history of Sulimániah M. NIEBUHR visited this part of the country in the year 1769, and found the people subject to a sort of feudal government They are imagined to be the Carduchai of ZENOPHON, and their national character has descended unchanged from time immemorial KINNEIR has made Sennah, which is situated about ninety-five miles to the eastward, the capital, but the Wály or chief of that town is a mere creature dependent upon His Majesty of Persia, to whom he transmits a handsome sum annually The father of the present Wály was a man of great power and independence, but he became deranged, and unfortunately, madness would seem to run in the family, as his son has given ample proofs of it

Sulimániah is an extensive place, and forms a central emporium to the neighbouring tracts of cultivation The country which surrounds it is charming, the soil gravelly, as far as its immediate vicinity, when it becomes more sandy, and of a light loamy nature. The rich appearance of the wheat and barley I have already noticed, the green at this time was most beautiful We found the tillage of the district excellent, the fields being neatly divided into square compartments, for the benefit of irrigation.

Being the bearer of a letter for the Pasha, he assigned me a house in the best part of the city, and I found the people both civil and obliging They pretend to pique themselves upon hospitality, but how its duties are discharged, will depend entirely on circumstances For instance, in the year 1828, habited as a Turk, I travelled through Kúrdistán in company with a man who pretended to be a lineal descendant of the prophets, and we journeyed a distance of six hundred miles, halting at this city on the way, without spending the sum of ten Persian rials The Seyad afterwards assured me, that he was offered a wife at every village through which we passed, but, added he, "as I was your Mehmándár, I could not act with such indecorum." However, he actually had a wife of his own, at every town of note between Bagdad and Tabríz This man's name is Ishmael, he has often served English travellers, and has always given infinite satisfaction At the time I am now writing, I have not disguised myself, but am in the costume of my own country, the consequence is, I find travelling here more expensive than in Persia Nevertheless, I would advise all travellers who care not for the expence, and have plenty of spare time, to pass hence in their own dress, for their persons are respected, and in security whereas, by adopting a foreign garb (although better opportunities are afforded of observing the people and country), a traveller might be murdered for the value of a decent pair of shulwárs *(breeches)* My own life was attempted more than once at the time I have just referred to, but, now I feel as secure as if I were passing through Regent Street

Amongst those tribes whose morals have been vitiated by habits of rapine, it is unsafe to trust to the strongest professions For there can be no doubt that cruelty and avarice characterize this people, though they by no means hoard their money, always preferring to convert it into horses, mares, lances, pistols, swords, and ornaments for their women Cash is not very current amongst them, purchases being made by barter. In all my travels I never could procure change for a sum equivalent to a rupee

The females are not shut up in this or any other Kúrdish town, nor are they veiled, like those of most Muhammedan countries. On entering the house of a Kúrd, you are not annoyed by women rushing in every direction to escape notice During my stay amongst them, I constantly met women in company with men, without veils It is true they are not permitted to eat with the men, but in every other respect they are entirely free. As far as my own observation extended, they were not possessed of those personal charms which might impose the necessity of restraint, though a few of them, if

dressed up in the Parisian fashion, would be considered pretty brunettes, their complexions were not so dark as to veil their blushes. They were generally small and well made, and had large dark eyes, the appearances of which they take great pains to show off to the best advantage They dye their eye-brows with a collyrium called in the Arabic "*khattat*" It is reduced to a fine powder The eye-lids are painted with the "*kahel*," and the lashes blackened with a reed, which is passed between the eye-lids The angles of the eye are also tinged and prolonged, which makes it appear much larger The ancient Egyptian ladies, as well as the modern Persian, are represented as having resorted to the same arts of the toilette Juvenal admirably satirises the Roman ladies for this coquetry.

> "Illa supercilium, madida fuligine tartum,
> Obliqua producit acu, pingitque trementes
> Attollens oculos"—(Juv Sat ii l 93)

Another fashion equally essential to Kúrdish beauty, requires that the nails of the hands and feet should be stained with henna, and so very general is this custom, that any woman who should hesitate to conform to it would be considered immodest. The soles of the feet are likewise daubed with the same coloring The fingers are sometimes partially painted, and to prevent the henna taking every where, the fair artists twist tape round them before they apply it, so that when the operation is completed, their fingers are fancifully marked with orange-colored stripes, which is by no means improving to a fine hand. In fact, the delicate whiteness of the palm, and the rose color of the nail, is utterly effaced by this dye

In a large town like Sulimániah, it is not to be supposed that the women enjoy the same degree of liberty as they do in villages, indeed, they are often much watched, and in the marriage contract, it is insisted that the bride shall exhibit those proofs of her innocence, which afterwards she is expected to confirm by her conduct. In fact, a bride would be returned to her parents, should she be unable to produce the testimonials of her virginity I have certainly seen them very familiarly inclined, but I was told they are not backward in assuming the semblance of enticement, that the incautious stranger may proceed to improper liberties, upon which these artful females accuse the unhappy guest of freedom and insult, when their male relations seize upon his baggage, and otherwise molest him

In their mode of life, the Kúrds are habitually abstemious, subsisting on the coarsest rye-bread and manna, and when meat is introduced at their meals, it has seldom undergone any further culinary preparation than that of boiling in plain water Some travellers have

spoken of their personal cleanliness, but on this point I certainly cannot agree with them. In regard to cleanliness, none of the Asiatics can be compared to ourselves Their repeated ablutions very imperfectly remove the evils attendant on the length of time they wear their clothes I speak from an intimate acquaintance with the practices of Muhammedans in general Circumcision is supposed to contribute to cleanliness, and is not confined to our sex alone, as the girls of many tribes undergo an operation somewhat similar just before they reach the age of ten I am ignorant of the manner in which this is done, as the natives are not very communicative on such subjects, but there are women who live by the performance of it. The barbers operate on the males, and are esteemed unclean from the profession they exercise

The Kúrds have a practice of removing all the hair from the parts of the body, where we suffer it to remain, and where we carefully shave, they as carefully cherish its growth The women also practise depilation in the following way A thin cord is dipped into some particular gum, and drawn slowly over the parts, when it removes all that adheres to it This process is extremely painful, but the remedy does not require a frequent recurrence, as it either produces a complete eradication, or if a new growth appears, it is merely a soft down, which may be removed with facility.

Another remarkable contrast between European and Asiatic taste is, that corpulence and bulkiness form the greatest trait of beauty It is natural enough, therefore, that the females are desirous of acquiring a superiority in this particular They accordingly eat a great variety of sweetmeats, candied fruit, and particular vegetable substances, grated down, and mixed with conserves This latter composition is thought to be adapted both for vigour, and that *en bon point*, which is so delightful to their admirers A Kúrd of some rank, in describing the charms of his intended bride, said to me with much seriousness—"She is as large as an elephant!"—He considered this comparison the very acme of perfection.

III.—*On the connection of various ancient Hindu coins with the Grecian or Indo-Scythic series By* JAMES PRINSEP, *Sec &c*

In my last notice on the subject of coins, I promised to bring forward demonstrations *in kind*, of the direct descent of the Hindu coins of Kanouj, from what have been denominated the Indo-Scythic series In attempting to redeem my pledge, I am aware that I run counter to the opinions of those who maintain that the Hindus practised the art of coinage, and had a distinct currency of their own before the Greeks entered India, especially my friend Colonel Stacy. To him my opposition might appear the more ungracious, since the weapons I am about to use are chiefly those he has himself so generously placed in my hands; but that I well know he is himself only anxious to develope the truth, and will support a cherished theory no longer than it can be maintained with plausibility at least, if not with proof.

I am not, however, about to contend that the Hindus had no indigenous currency of the precious metals On the contrary, I think evidence will be found in the collection about to be described, that they circulated small pieces of a given weight, that stamps were given to these, varying under different circumstances, and that many of these earliest tokens exhibit several stamps consecutively impressed on the same piece, until at last the superposed impressions (not those of a die but rather of a punch) came to resemble the devices seen on the Indo-Scythic coins, in company with which they have been found buried in various places, particularly in Captain CAUTLEY's Herculaneum at *Behat* near Sahâranpur

That from this period, in round terms, may be assumed the adoption of a *die-device*, or of coined money properly so called, by the Hindus, is all I would venture at present to uphold, and in doing so, I will not again appeal to the assertions of PAUSANIAS*, quoted in ROBERTSON's disquisition, that the Hindus had no coined money of their own, nor to the silence of the Mahâbhârat and other ancient works on the subject, but solely to the close family resemblance of four distinct classes of Hindu coins to what may be called their Bactrian prototypes, namely, those of *Kanouj*, the later class of the *Behat*, or the Buddhist, group, the coins of *Sauráshtra*, found at *Ujjain*, in *Guzerát* and *Cachha*, and those which Colonel STACY has denominated *Rájput* coins, having the device of a horseman on one side, and a bull on the other.

Before proceeding to comment upon the first of these classes, my tribute of obligation and praise is due to Colonel STACY, for the

* See J A. S vol 1 page 394

persevering labour and true antiquarian zeal, which have alone enabled him to gather together such a rich collection of this peculiar and rare type, and for the disinterested readiness with which he has placed them at my disposal, to select from and republish at once, thus depriving him as it were of the first fruits of his enterprize and toil It is true that so far at least as regards the merit of discovery, his title will rather be confirmed than injured by early publicity, but the employment of another hand to illustrate his materials may do injustice to his own careful classification, and modify the opinions and [illegible] regarding the origin, connection, and antiquity of various groups, which he may have derived from a larger and more intimate study of the subject, and from the actual inspection and handling of thousands of coins, that have been withheld from insertion in his select cabinet

The home collector, who like myself, but receives contributions from others, may learn, from the superior fulness and novelty of many of the following plates, to appreciate the advantage of personal exertion over second-hand acquirement In further proof of this, I could produce some of the letters now lying before me, received from Colonel Stacy on his several coin excursions Here he would be seen putting up with every inconvenience, enduring the burning heats of May, or the cold of December, under trees or in common serais in Central India, digging in deserted ruins, or poring over the old stores of village money-changers, after having (the principal difficulty and art), won their confidence, sometimes their interest, in the object of his pursuit sparing neither money nor time to gain his end, and after a hard search and fatigue, sitting down, while his impressions were still warm and vivid, to communicate the results of his day's campaign.

Col Stacy felt himself for a moment disheartened on beholding the treasures of Gen. Ventura and his followers but although the character of the Bactrian relics necessarily eclipses all that can be expected from a Hindu source, while their prolific abundance astonishes the gleaner of Hindu relics, a moment's reflection should restore a full or even increased degree of satisfaction Hindu history is even more in need of elucidation from coins than Bactrian The two countries are in fact found to be interwoven in their history in a most curious manner, and must be studied together The alphabetic characters, the symbols, and most especially the *link-coins*, (emphatically named so by Colonel Stacy,) are fraught with information on this head, which can only be extracted by multiplying the specimens, and thus completing the chain of evidence. It will be seen shortly, that

several of the dynasties to which the coins belong have been identified through the names and legends they bear, and many new princes, hitherto unheard of, have been brought to light. Let not therefore Colonel STACY desert his line for one more engaging, but persevere in it as long as anything remains to be explored.

I cannot resist in this place pointing out the line of search recommended by Colonel TOD, (to whom is justly ascribed the paternity of this branch of numismatic study,) in a note on the late *Pánjáb* discoveries published by him in the Asiatic Journal of London for May: "Let not the antiquary," he writes, "forget the old cities on the east and west of the *Jamna*, in the desert, and in the *Panjáb*, of which I have given lists, where his toil will be richly rewarded I possess bags full of these Indogetic gentry, and I melted down into several sets of basons and ewers, the rust of ages from which the tooth of time had eradicated whatever had once been legible I would suggest the establishment of branch-committees of the Asiatic Society at several of the large stations, which would have a happy moral result in calling forth the latent talent of many a young officer in every branch of knowledge within the scope of the Society *Agra, Mathura, Delhi, Ajmír, Jaipur, Némuch, Mhow, Ságar*, &c are amongst the most eligible positions for this object A topographical map, with explanations of ancient Delhí, is yet a desideratum, and of the first interest: this I had nearly accomplished during the four months I resided amidst the tombs of that city"

In thanking Colonel TOD for his encouragement and advice, I must be allowed to differ altogether as to the means to be employed Committees are cumbrous, spiritless, and inactive engines, for such an end, when anything does appear to be effected by them, it is generally the work of one member, whose energy is only diluted and enfeebled by the association Give me rather the unity of design, and quickness of execution of (I will not say agent, as Colonel TOD suggests, but of) an independent pursuer of the object for its own sake*, or for his own amusement and instruction It is by such as

* These I may say are already provided at more places than Colonel TOD points out: Colonel STACY at *Chitor, Udayapur*, and now at *Delhí* Lieutenant A. CONOLLY at *Jaipur*, Captain WADE at *Ludhána*, Capt CAUTLEY at *Sehéranpur*, Lieut CUNNINGHAM at *Benares*, Colonel SMITH at *Patna*, Mr TREGEAR at *Jaunpur*, and Dr. SWINEY (now in *Calcutta*), for many years a collector in Upper India And for the exterior line, Lieut BURNES at the mouth of the Indus, Messrs VENTURA, COURT, MASSON, KERA'MAT ALÍ and MÒHAN LA'L in the *Panjáb*, besides whom I must not omit Messrs. H. C. HAMILTON, SPIERS, EDGEWORTH, GUBBINS, Capt JENKINS, and other friends who have occasionally sent me coins dug up in their districts.

these that all the good has hitherto been done, the extension of patronage followed rather than preceded or prompted the great discoveries of last year in Kábul.

The plates I have prepared to illustrate my subject have not been numbered in the most convenient order for the purpose, but as it is a matter of indifference which I shall commence upon, it will be fair to give our first attention to Plate [illegible] containing the so long postponed representation of the coins [illegible] dug up by Capt CAUTLEY at Behat, and noticed in the Proceedings of the Asiatic Society on the 14th January last.

The exhumation of this subterranean town has not perhaps been followed up with as much vigour as it would have been, had not its discoverer's attention been diverted to other antiquities of more overwhelming interest—the fossil inhabitants of a former world—before which the *modern* relicnes of a couple of thousand years shrink into comparative insignificance. Perhaps indeed the notion of a city at the spot indicated by these remains should be modified. Professor WILSON writes me, that he cannot suggest any ancient city of note so situated, yet if it existed so late as the 3rd or 4th century of our era, it ought surely to be known. It may probably have been the site of a Buddhist monastery, which became deserted during the persecutions of this sect, and was then gradually destroyed and buried by the shifting sands of the hill torrents. Some of the relics now to be noticed forcibly bear out this supposition.

Plate XXXIV. Behat Group.

The upper half of this plate contains a continuation of the relics dug up at *Behat* by Captain CAUTLEY.

Fig. 1 is the object of principal interest, because it stamps the locality as decidedly Buddhist, and leads us to infer, that the coins are the same, although we [illegible] have nothing that can be positively asserted to [illegible] this sect. The figure represents two fragments of a [illegible] of [illegible] clay. In the inner circumference are carved or stamped, a succession of small figures of BUDDHA seated, apparently 12 in number, and on the upper surface, a circular train of lizards. It is difficult to imagine the purpose to which it could have been applied. In some respects it may be compared

* We have arrested the press of this sheet to announce the arrival of the second memoir by Mr MASSON, on the produce of his labours at *Beghram*—the same announced some time since by Captain WADE. We shall hasten to prepare lith[illegible] of the numerous figures with which it is illustrated, although comparatively few (not more than 5 or [illegible]) are altogether new to Gen. VENTURA's collection.

Relics from Behat near Seharanpur

to the semi-circular sculpture near the *Bo*-tree at *Anurádhapura* in Ceylon, depicted in the 3rd volume of the Royal Asiatic Society's Transactions, but, in that, the ring of animals consists of elephants, horses, tigers, and bulls, alternately* four animals, which have a place in the *Bauddha* mythology, as I am not aware that the lizard is regarded in any degree of reference by the Buddhists.

Fig 3, an old ring of copper, like the more ornamental ring of Plate XVIII. volume [illegible] in some respects to be looked upon as a *Bauddha* relic; for in its metal it accords well with an extract from the *Dulva* in M Csoma Korosi's Analysis of the Tibetan Scriptures, containing *Shákya's* injunctions that his priests should only wear seal-rings of the baser metals "Priests are prohibited from wearing *rings*, and from having seal-rings of gold, silver, or precious stones; but they may have seals made of copper, brass, bell-metal, ivory, horn. A man of the religious order must have on his seal or stamp a circle with two deer on opposite sides, and below, the name of the founder of the *Vihara* A layman may have a full length figure, or a head, cut on his signet"—Leaf 11, 12, volume X of the *Dulva*—Asiatic Researches, xix 86

The circular devices of some of the coins (23 of this Plate, 31 and 32, of the following,) may perhaps also be explained by the rule of this teacher cited in the same extract, that the priests should use no other impress than that of the circle, and it is remarkable, that the deer is the very animal found on the most prominent silver coins of the group, such as fig 16 of the present plate, and 48 of Plate XXXV, (see also volume iii. pp. 227 and 434)

Fig 4 A small image of baked clay; is more like a plaything for children than an object of worship

Figs 5, 6, 7, 8, 9, 10, are varieties of the peculiar coins of the *Behat* series already noticed in Plate XVII. of volume iii

The characters in many are tolerably distinct, and are clearly allied to, if not identical with, those of fig [illegible] true descendant of the Kanerkos series, as will be presently shewn in my Indo-Scythic Plate, LI, figs. 16, 17, (q. v.) The emblems also on many, a bull

* "At the foot of the steps to this second building, and let into the ground, is a very remarkable slab of hard blue granite it is semi-circular, and sculptured in rings or bands of different widths. Some of the patterns are scrolls, equal in beauty to any thing Grecian; one consists of the *Hansa* or *Bráhmana* duck, bearing the root of the Lotus in its bill, and the most curious has figures of the elephant, the horse, the lion, and the cow, which are repeated in the same order, and sculptured with great spirit and accuracy of outline"—*Roy. As. Soc. Trans. III.* 467.

and an elephant, may be imitations of the Azos coin In fig. 7, the ☸ symbol is exactly a *Chaityą*, or Bauddha monument, as I had from the first supposed

The tree is also satisfactorily made out in fig 15, and in many of the coins in the following plate. In fig 23, it is seen at the side of a walking figure, and above it, in a very perfect coin of the same type, since sent to me by Lieut. CONOLLY, the sun shines,—as it were on the saint and his holy tree.

The three most conspicuous letters on all of these coins are ψϑψ or *y dh y*, and it does not seem any great stretch of imagination to see in them a part of the word *Ayodhaya*, the seat of one of the earliest Hindu dynasties, and which was at the commencement of Buddhism almost as much the resort of its founder SHÁKYA, as *Rájgriha* the capital of *Magadha*. Still from the association of these coins with those of the Indo-Scythic dynasty, it would be hazardous to attribute to them any greater antiquity than the early part of the Christian era.

The metal of these coins is a mixture of tin and copper, which retains its figure well, and is white when cut.

Figs. 11, 12, will be recognized as Indo-Scythic coins being found along with the rest, they serve to settle the point of antiquity

On fig. 13, are the letters ⊔ηε⊔ (in Tibetan ꤟ⠀ꤷꤸꤶ. .) *p ráya s*

On fig 16, are a further supply resembling more the *láth* alphabet ꤷꤶꤸꤶꤶ. *a mapasáte* .. The same combination occurs in fig 45, otherwise so different a coin, on the reverse, the letters under the symbol very much resemble the Pehlevi ⊔ϟϟϟϟϟ *malakáo* This silver coin is of M VENTURA's collection.

Fig 17, is peculiar for its multitude of symbols, most of them known to us by their occurrence on other coins. This specimen is also of the VENTURA collection.

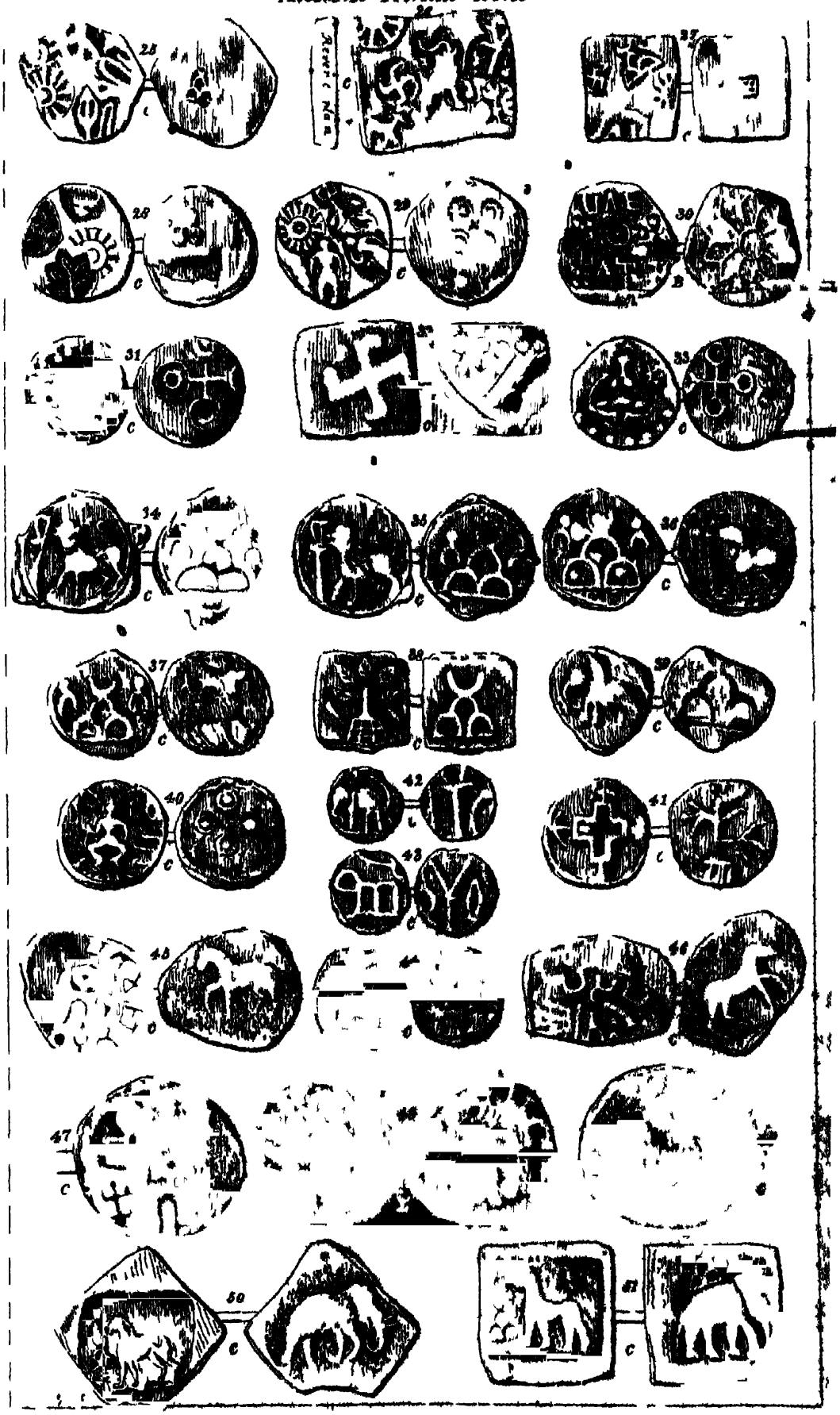
Fig. 18, a coin in Mr. TREGEAR'S possession. Several of the same kind have been before introduced into my plates, but hitherto the figure under the elephant has been supposed to be a prostrate elephant vanquished by the upper animal. The multiplication of specimens has at length shewn us the true character of the doubtful part, and that it merely consists of two of the common symbols of the series.

But we must now turn to Plate XXXV. in which, thanks to Colonel STACY, I have been able to attempt a more methodical classification from his abundant supply of this Buddhist series of coins.

Plate XXXV. Stacy's earliest Hindu Coins.

It is an indisputable axiom, that unstamped fragments of silver and gold of a fixed weight must have preceded the use of regular coin

Ancient Hindu Coins



in those countries where civilization and commerce had induced the necessity of some convenient representative of value The antiquarian therefore will have little hesitation in ascribing the highest grade of antiquity in Indian numismatology to those small flattened bits of silver or other metal which are occasionally discovered all over the country, either quite smooth, or bearing only a few punch-marks on one or both sides, and generally having a corner cut off, as may be conjectured, for the adjustment of their weight* Many instances of this type have been given in Col. MACKENZIE's collection, (figs 101 to 108 of WILSON's plates) who describes them as "of an irregular form, bearing no inscription, occasionally quite plain, and in any case having only a few indistinct and unintelligible symbols that of the sun, or a star is most common, and those of the *lingam* (?) the crescent, and figures of animals may be traced" The Colonel's specimens were chiefly procured in South India. others have been dug up in the Sunderbans —and many were found at *Behat* (fig 14)

But the few selected specimens in Col STACY's collection, (figs. 25—29) yield more food for speculation than the nearly smooth pieces above alluded to On all these we perceive the symbol of the sun to be the faintest of those present in two instances (figs 28, 29) it is superposed by symbols which may be hence concluded to be more recent These are severally, the ☸ *chaitya*, the tree, the *swastika* 卐 and the human figure, besides which in fig 26, we have the elephant, the bull, and the peculiar symbols of figs 34—37 They are all stamped on at random with punches, and may naturally be interpreted as the insignia of successive dynasties authenticating their currency.

In one only, fig 30, does there appear any approach to alphabetic characters, and here the letters resemble those of the *láths*, or of the caves on the west of India, the most ancient written form of the Sanscrit language.

From the above original seem to have descended two distinct families, of which one was produced by the hammer and die, the other by casting in a mould Of the latter, easily recognizable by the depth of relief, the projecting keel on the margin, shewing where the moulds were united,—and the greater corrosion due to the softness of the cast metal,—we have various groupes, and sub-divisions, but most of them agree in bearing the ☸ monogram for their obverse; sometimes, as in figs. 34, 35, 36, 37, with addition of two smaller symbols, ♋, like the sign of Taurus reversed.

* Their average weight is 50 grains, or the same as the *tank* (= 3 *máshas*) of the ancient Hindu Metrology Indeed the word *tank-sála*, mint, goes far to prove that these are the very pieces fabricated for circulation under that name.

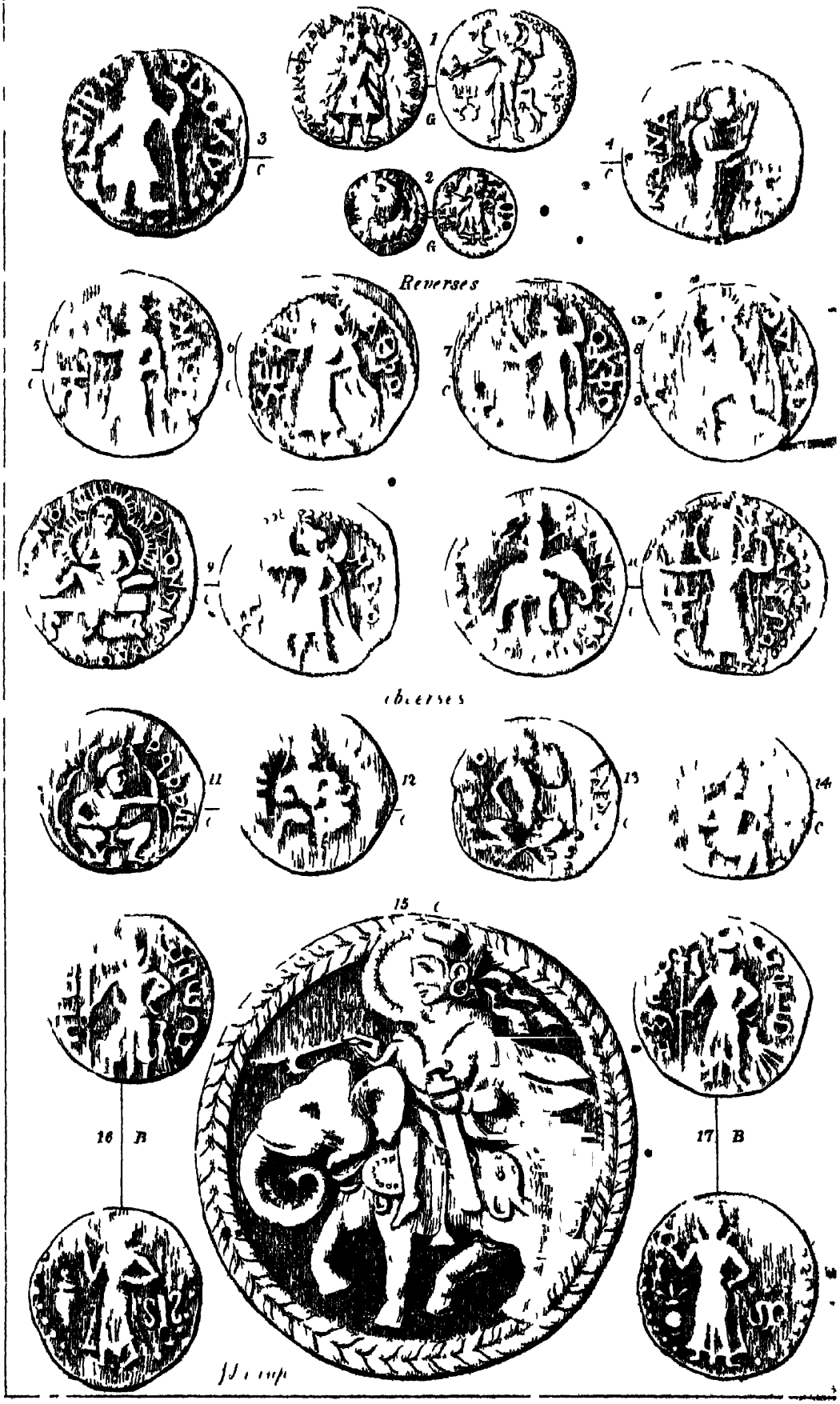
On the reverse, we have frequently a dog with a collar (and bell?) guarding a sword or flagstaff of victory, (*jaya dhvaja?*) figs. 20, 21, 34, 35, 36 At other times an elephant (fig 39), a bull (37), or the sacred tree (15, 38) and, in rarer cases, the devi e on both sides is changed, as in 40, 41 Figs 18, 42, and 43, (in the latter of which the elephant might easily be mistaken for a deva nágarí letter,) are of the cast species, to which also belongs the multi-symbolic coin, fig 18, of the last, and its fellows of former plates The leaden coin 49, is also cast, but it is probably a forgery of some copper original

Of the second branch, or die-struck coins, we have also several subdivisions—1*st*, the peculiar bronze-metal (*Ayodhya?*) coins of Behat in the last plate, to which belongs 44, with the tree symbol, and a sitting dog on the obverse 2*nd*, a groupe, (figs 45, 46, 47,) having a horse on one side, similar to Lieut. CONOLLY's coin, fig 1, Pl. XXV of vol iii, 3*rd*, the stag and *chaitya* coin, (figs 16, 48, also figs 1, 2, and 6, of Pl XVIII and fig 4, of Pl XXV vol. iii); and 4*th*, those square rude coins, first pointed out by MASSON, having an elephant on one side and a lion (dog) on the other, with the characteristic symbol ♁ figs 50 and 51, of this kind are from the VENTURA collection.

Upon most of the latter or die-struck species are portions of inscriptions in the *láth* character, as was first clearly determined from Lieut. CONOLLY's coin, (Pl XXV vol iii) The letters so well defined on that type coin may be read, विद्हेवस, *vidáhévasa*, the second in the list there given was converted into तपसलचच, the third into भगवतरूप but such renderings, having nothing beyond their being real Sanscrit words to recommend them, are hardly admissible In the same manner, nothing can be made of the combination *patama dásata* of fig 45, *pasaha* of 46, or *ramahata* of 47 the last coin is curious, from having an alligator or lizard symbol, similar to the sign on the porcelain ring from Behat (fig 1)

In explanation of the absence of any of the titles of sovereignty in these legends, the quotation already cited from M. CSOMA's analysis of the *Dulva* may be again brought forward—that under the symbols of the circle, deer, &c the name of the founder of the *Vihara* should be inscribed;—indeed the whole of the above passage is singularly applicable to this group of coins; and, in conjunction with other evidence, suggests the idea that the Buddhist coinage was struck in the monasteries of the priesthood, where the learning, skill, and riches of the country would naturally follow their attainment of influence, and ascendancy over princes and people. The same argument may account for the imitation of Bactrian or Indo-Scythic

Indoscythic Coins-Kanerkos group



devices in the later coins of the series, since it is well known, that Buddhism prevailed through these countries also, and a constant intercommunication must have been consequently kept up. How far the antiquity of the first Buddhist groups of coins may have approached the epoch of BUDDHA (544 B C) it is difficult to determine, but the acquisition of their similitude to the Indo-Scythic coins must have been posterior to the breaking up of the genuine Bactrian dynasty, perhaps about the commencement of the Christian era.

Plate LI Indo-Scythic Coins resumed

Having disposed to the best of our knowledge of the earliest Hindu coins, we must now return to the Indo-Scythic series, for the purpose of conducting the reader through the promised line of connection into the second great field of Hindu imitation.

Enough has been said on former occasions of the two principal families of this type, the KADPHISES and the KANERKOS groupes, but with a view of systematizing a little the information already obtained, and, at the same time, of introducing a few new and very beautiful coins lately added to our list, I have collected in the present plate the principal varieties of the KANERKOS *mithriacs*, subsequent to the adoption of the vernacular titles *rao* and *rao nano rao*.

With the most common obverse of the Indo-Scythic family, a raja clad in the Tartar coat and inscribed PAO KANHPKI, fig 3, I have traced on the copper coins, as well as in the gold ones, the following series of reverses, NANA (for *nanaia*), NANAO, MAO, MIΘPO, MITPO, MIOPO, MIPO, AΘPO, OKPO, and a word not very clearly made out on fig 8, OAΔO Of these, the explanations have been already attempted*, *mithro*, *mitro*, *miro*† are but varieties of *mithra*, the sun, whose effigy on the genuine Greek coins of KANERKOS is plainly entitled HAIOΣ. *Okro* I have conjectured to be intended for *arka*, the Sanscrit name of the sun, and his four-armed effigy in fig 7, more beautifully developed on the gold coin fig 1, an unique obtained by KERÁMAT ALI at Cábul, confirms this opinion *Athro* has been before stated to be the Zend word for the igneous essence of the sun, and accordingly, we find flame depicted on the shoulders of the figures bearing this epithet, in fig 6, and in fig 2, a very pretty little gold coin, for which I am also indebted to KERÁMAT ALI *Nanaia*, remaining feminine in NANA of fig 4, has been shewn to be the Persian *Diana*, or the moon —and in strict accordance with the Brahmanical mythology, this deity is made masculine in NANAO and MAO, the *mas* or *lunus* of the Hindus,

* See vol. iii p 452, et seq.

† Lieut CUNNINGHAM has added this variety from a fine gold coin.

and on his effigy in figure 9, (as in former drawings in vol. iii.,) the horns of the moon are seen to project from behind his shoulders.

The same devices in every respect are continued upon several succeeding coins of the *Rao nano rao* series The chief varieties of the obverse of these are given in figs 2, 9, 10, 11, 12 13, 14 The order in which they should be placed is necessarily doubtful; but judging from the comparative perfection of the Grecian letters, the "couch-lounger," fig 9, and the "elephant rider," fig 10, should have precedence over the rest

Fig 9, from the VENTURA collection, is a very perfect specimen of the couch-lounger He has a glory extending around his body, as well as his head, and his titles, *rao nano rao* and *korano*, are distinct, but the name is unfortunately missing, no more than O O being visible

In fig 10, we are not more fortunate, but from the succession of *o's*, we may guess the word to be OOHMO or OOHPKI, names already known on the gold coins Some of the Manikyála elephant coins had the name KEN PANO. This family is extremely numerous, and is procurable among the old pice of every bazar in Upper India

The names on the last series, figs 11 to 14, are illegible, but the letters are still Greek The three first specimens are selected from a number in Col STACY's cabinet, to exhibit the varieties of the sitting posture, and its gradual transition to the squat position of the Hindus Col TOD has supposed the figure in a coin similar to fig 11, to be Parthian, but what he there took for a bow was evidently the ornamental contour of the back of the prince's throne or *sinhásan*. Fig 14, is from a coin in Col SMITH's possession

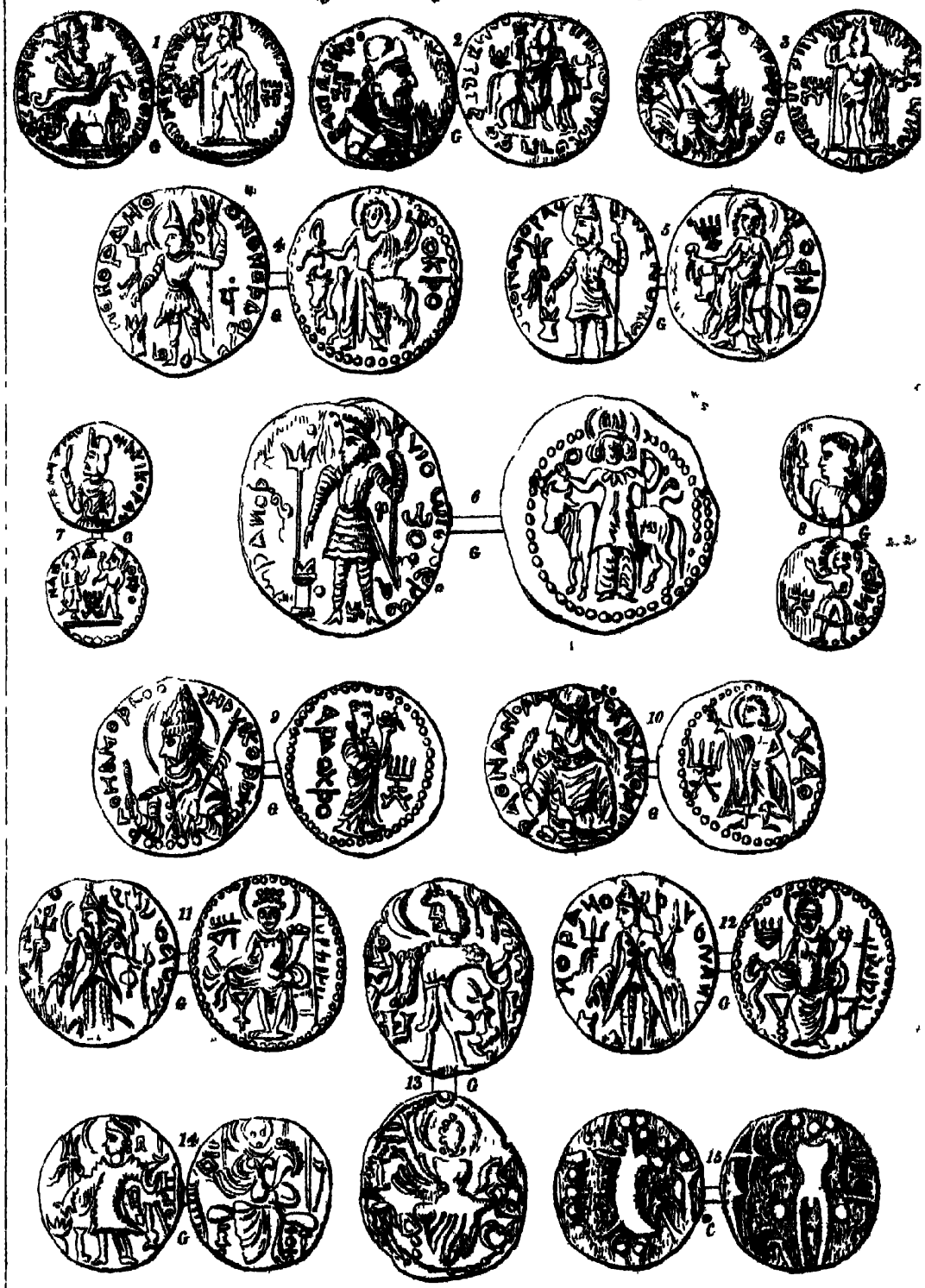
In fig 15, of this plate, drawn from a plaister cast of a bronze, embossed, *chaprás* or badge in the VENTURA collection, we may conceive the full device of the elephant obverse to be developed The faulty proportion of the rider still prevails,—the flowing fillets to the head-dress, the *ankush* to guide the animal, the glory around the face, are visible in both, but the name is wanting

Of figs. 16 and 17, the former from Col. STACY's, the latter from Col. SMITH's, cabinet, I have already noticed a less perfect specimen while descanting on the earliest Hindu coins The general style of the figures on both faces so strongly resembles that of the KANERKOS coins, that I feel disposed to look upon them as imitations The legend has a fourth letter very distinct, besides some less distinct on the left hand, ꦪꦺꦴꦥꦶꦪꦭ ꦠꦗꦪ *yodhíyala tajaya*

Plate XXXVIII. Indo-Scythic and Hindu Link-Coins.

It is worthy of remark, that none of the KANERKOS coins have a Pehleví legend, although the collateral series of KADPHISES, which

Connection of Indo-scythic with Canouj Coins



Hindu Coins Canouj Series

J. Prinsep del.

possesses so many attributes in common with them, invariably has this accompaniment Considering that all the Bactrian family have the same, it would perhaps be better to place KADPHISES as the last of the *Pehlevi* series, immediately *before* KANERKOS*, and he will thus follow most conveniently the *Kadaphes choranos* described in my last paper Indeed, as the word *Kadphises* never occurs except in conjunction with some other name, as OOHMO, or OOKMO, it may be read as a patronymic appellation of the family—the descendants of KADAPHES

Of the gold coins of KADPHISES, two varieties only were hitherto known to us By singular good fortune, Colonel SMITH has met with a third, and with duplicates of the former two, in the common bazar of Benares! His agent purchased the three, which are engraved at the top of Plate XXXVIII from a shroff, who said they were sold to him two years ago by a Marhatta pilgrim to the holy city, in whose family they must doubtless have been hoarded for many centuries, for their character precludes any suspicion of their genuineness Of fig 2, I have since found a duplicate in KERÁMAT ALI's last despatch to myself fig 3, is a duplicate of the one Dr. MARTIN† extracted from the

* They must have been nearly contemporaneous Lieut CUNNINGHAM tells me, he has just obtained 163 KANERKI and KADPHISES copper coins, which were dug up in a village near Benares The proportions of each type were as follows KADPHISES and bull, 12, KANERKI, 60, elephant-rider, 48, running or dancing figure on reverse, 13, couch-lounger, 13, cross legged, 5, squatted figure, 8, and undistinguishable, 4 In the collections from the Panjáb, the ill-executed descendants of the bull reverse predominate

† The May No of the Asiatic Journal of London contains an announcement of the safe arrival of this coin and of the collector himself, in Italy Col TOD on his travels happily found, and translated the following notice from the *Bulletin* of the Archæological Society of Rome, which our readers will read with avidity, although in fact it adds nothing new to our information

"Signor HONIGBERGER has returned from a voyage in the east, laden with an abundant antiquarian harvest of most important medals Among the more remarkable are a large one of DEMETRIUS, another, very beautiful, and in fine preservation, of EUTHYDEMUS, and a third, extremely perfect, of HORMUSDAS of the Sassanian dynasty all three, it would appear, hitherto unknown (inédites) But what seems to us to merit still more consideration, is a similar monument, with the name of a king KADFISE written in Greek characters Signor HONIGBERGER discovered it in the vicinity of Kábul, where, in a small wooden case, amongst a quantity of ashes and earth, he found a little silver box containing the above-mentioned coin, together with a blackish (or dark-coloured) Nerastra (stone in the form of an egg), with some small bones, apparently those of a child Upon the medal is the bust of an aged man, of no very noble expression, bald-headed, in a simple garb, and holding in his right hand an implement resembling a hammer Around it is a very distinct inscription, in Greek characters, ΚΑΔΦΙΣΕC ΒΑΣΙΛΕΥC, and less-well-preserved, other cha-

Jelálábád tope, depicted in MASSON's Plate XIII vol iii Fig 1, is as yet unique, and is of particular interest, from the style of the obverse The king is here seen mounted on a Grecian or Roman war-chariot, drawn by two horses, and driven by an *auriga* of diminutive proportions The execution is very perfect, with the exception of the exaggeration of the principal figure The inscription is quite perfect, BACIΛEYC OOHMO KAΔΦICHC, and on the reverse, in Pehlevi [illegible] as nearly as can be made out by a careful collation of the three coins I cannot attempt to interpret this long inscription, but the commencement seems to be *Malakáo Kadiapas* The symbols are the same as usual, and the perfect preservation of this beautiful coin enables us to note the flames playing on the shoulders of the monarch similar to those on the effigy of *Athro* in the last plate, and to those on the image of *Buddha* dug up by Dr GERARD at Cábul, (see Plate XXVI vol III)

I have hitherto been unable to determine the meaning of the bull reverse The next two figures (4, 5,) of the present plate remove this difficulty They are both gold coins of the VENTURA collection, on the obverse, the titles *rao nano rao* and *korano* are visible, and in the area of fig 4, what appears to be the Sanscrit syllable ব, only we know that the Sanscrit of that ancient period was of a different form. But the reverse of these is what we should particularly notice, because the word OKPO, (in one coin written downwards, in the other upwards,) marks the bull and his priest as dedicated to the solar worship, and not to SIVA of the Brahmanical creed

The next gold coin, No 6, requires no particular notice, nor does fig 8, on which the simple title PAO, seems to designate a young prince, but the three following, also of General VENTURA's superb collection, must arrest us for a moment

The name on the *obverse* of these is OHPKI, the same as on the *Mánikyala* small gold coins on the *reverse*, fig. 7 shews us the two radical emblems united, *Nanaia* and *Okro*, on the same coin, with the four-

racters resembling MO (OOHMO) On the reverse is a naked youth, on whose head are traces of a turban or cap, (berretta,) and an inscription in Persian characters of the ancient Pehlví *(caratteri Persiani de l'Antico Pehlví)*. HONIGBERGER states, that he has other medals of this same king, hitherto unknown to history and numismatics. Another medal in gold, which the same traveller left with an amateur of antiquities at St Petersburgh, shews the entire figure of a similar king, armed from head to foot, and in the inscription, which is well preserved, the Greek characters B and O are legible. On the reverse is a man, clothed, with a horned animal before him. The epigraph on this is likewise in the ancient Pehlví character."

pronged symbol between them, and a mysterious triangle above. This little coin is unique The next, fig 9, is equally curious, though others in copper have been met with by Colonel STACY. The epigraphe borne by these is ΑΡΔΟΧΡΟ, which I suppose to mean "the great sun," *arda* or *arta* in *Ardeshir* and *Artaxerxes*, having that acceptation. On the copper coins, the word appears corrupted to ΟΡΟ ΟΚΡΟ, and this is probably the epigraphe of the dancing figure in Plate L.

In fig. 10, the name of the moon, ΜΑΟ, and the lunar crescent, are satisfactory and conclusive, as to that being the correct reading

And now we come at last to the main object to which this essay was directed, namely, to discover the prototype of the Kanouj coins in those of Indo-Scythic fabric

The great majority of what are called the Kanouj gold coins have on the obverse a prince standing precisely in the attitude of KADPHISES and KANERKOS The dress alone betrays a slight variation, being in some instances almost the coat and trowsers of the present day On the reverse is a female seated sometimes on a couch, more frequently in the native fashion, holding in her left hand a cornucopia, in her right a *pása* or noose This class of coin has long been known A brass-pot, containing, it is said, two hundred of them, was accidentally discovered by the wearing away of the east bank of the river Hugli, 10 miles above Calcutta, some years ago Twenty-four were presented to the British museum, an equal number to Dr W HUNTER, and a portion to the India House, the remainder were dispersed among private collectors It was from one of these that Mr WILSON's No 13 was drawn, and the same store furnished the figures in MARSDEN's plate The latter author in his *Numismata Orientalia*, vol ii. page 725, has the following passage, which will serve excellently well as a text to the present section of our essay.

"Some learned antiquaries think they discover in these the evidences of a Greek origin, but on this point I do not see enough to justify an opinion, and shall refrain from conjecture, cherishing the hope that future discoveries of Indian medals may throw a light upon the subject, which is in itself of the highest interest"

To this challenge we have now the good fortune to be able to respond most satisfactorily, for in figs 11 and 12 (of the VENTURA collection), we find precisely the obverse and reverse above described with the marginal legend in Greek, *rao nano rao korano*, and the superaddition of some incipient rude Nágarí in the position afterwards occupied by legible Sanscrit names and titles To set the comparison in the clearest light, the two lowest coins in the page have been inserted, fig. 16 from Gen. VENTURA's, fig. 17 from Col SMITH's, cabinet,

to shew the identity of the two classes The description of them in detail belongs to the next plate, where instead of deteriorating, they will be found to improve, while they become indianized An opposite effect is, however, observable in a second branch, derived from the same stock, which it is difficult to account for, unless by supposing a divided realm, one portion flourishing and patronising the arts, while the other maintained naught but the shadow of its pristine glory and ancestry This declining gradation is exemplified in figs 14 (VENTURA), 13 (STACY), and 15 (KERÁMAT-ALÍ), wherein at last it is barely possible to trace the semblance of the sacrificing rája on the obverse, or of the female on the reverse, although from the insensible gradations in a multitude of specimens, such are undoubtedly the figures Fig 15, is a very common coin in silver and copper one was extracted from the *Mánikyala* tope, and was then supposed to bear the representation of a crab and a dagger! That coin, it will be remembered, bore the obvious Nágarí letters श्रीयग Many others have been since discovered with the same, and it should be remarked, that the form of Nágari in these differs essentially from that of the collateral branch.

Here then we have the Indo-Scythic paternity of the Kanouj coinage proved by the best evidence and now we will proceed to examine in detail its Hindu offspring, before entering upon the natural enquiry whether such a fact is borne out by the meagre remnants of history and tradition that are applicable to this obscure period.

Plate XXXIX Hindu Coins—First Kanouj Series

The Deva Nágarí alphabet, published with Mr WATHEN's translation of the Guzerát copper-plates two months ago, will be found to apply in every respect to the coins before us it is also nearly identical with the Gayá and Allahabad alphabets, the principal exceptions having place in the *m*, which in the latter is written more like ᐯ, while in the former it is ᐯ; and the *s*, which is respectively ᐯ in the latter, and ᐯ in the former To avoid the necessity of casting a new fount of type to illustrate the following observations, I have availed myself of the pervading similarity of the Tibetan alphabet, which, though several centuries later, can, with the alteration of a few letters, be employed for our purpose much more readily than the modern Deva Nágarí

The Tibetan *r*, ᐱ, answers for *t* of this alphabet. ᐸ for *d*, and the prosodial stroke ᐵ for *r* The latter letter when inflected with the *a* or *í* vowel, may be represented exactly by the Nágarí short and long *i*, ि and ी For the *k*, *g*, *dh*, and *m*, I have been obliged to cut new type ᐱ, ᐱ, ᐱ, ᐯ, and for the letter which I have supposed from some likeness to the Tibetan ᐯ, to be *a*, I have given the new symbol ᐯ

the same, it will be remarked, that was excluded from the consonants in the *lâth* alphabet No. 1. The remaining letters require no explanation, as a comparison of the type with the engraved figures will shew their slight difference of form.

The readings of the inscriptions in the present plates are for the most part new, and have been made out, dictionary in hand, by one unacquainted with Sanscrit —they therefore claim indulgence, and will succumb to any more plausible interpretation from the professed scholar.

To begin with the two coins of the last plate, which appear to belong to the same sovereign ,—we find on the obverse (combining the two figures),the words [illegible] *Sri? (a) parajita davaja* On the opposite side of a duplicate fig 17, we find the name [illegible]: *Kumára gupta*, and on the reverse, to the right, [illegible]: *parakramah* The whole title may be interpreted, (if in *davaja* we suppose an ignorant writing of the word *dhvaja,)* " The hero of the unconquered standard, the blessed KUMÁRA-GUPTA "

Beneath the left arm of the *Raja* also are three letters superposed [illegible] in the Tibetan manner, *spyu* , which we learn from M CSOMA DE KOROS to be pronounced *chu*, and to signify *Raja*. The same word is prefixed to every prince's name in the list of Assam Rájas The triliteral compound may, however, denote a date A duplicate of Colonel SMITH's coin, 17, was presented to me by Captain WADE The WILLOUGHBY cabinet possesses another, and Mr WILSON has given one precisely similar, in which we find the [illegible] *Kumara gu (pta)* of the obverse, and the [illegible] *parakrama* of the reverse very well marked—the first letter however in this, as in our coin, is more like *bhu* or *su* than *ku*

In all of these specimens the trident of the *Rao* coins is changed into a standard, having a bird at the top, somewhat resembling the Roman eagle

Figs 18 and 19, are placed next in succession, because the cornucopia lady still sits on a couch in the European fashion The *Rája* here holds a bow in the left hand, and in the right, a short stick, for the fire altar below it is now removed A bracelet on the shoulder, and the head dress, begin to look Indian The letters on the margin of the obverse are lost, but in the bow, we find [illegible] *chndr* superposed as before. MARSDEN reads this combination *Chandra*, with some plausibility. On the reverse of 18, is the name or title of the prince [illegible]: *Sri Vikrama.*

On fig 19, the name is quite different [illegible]: *úpati rurha*, " The averter of misfortune."

The first and last letters of this name or title are doubtful, and on my first examination of the coin whence the drawing was made, I thought the first two letters might form the *bh* of WATHEN's *Gujeráti* alphabet, making the word *bhúpati rurha*, 'the overthrower of kings' I have named the last letter from its resemblance to the ॠ of the Nágarí alphabet These two coins were dug up at Juanpur by Mr. TREGEAR, whose description will be found in vol iii p 617

Figs 20 and 22, are of the kind described by MARSDEN The goddess of plenty here sits in the native fashion on an ornamental stool, or a lotus flower The cornucopia also is transformed into a large flower at the end of a stalk The *Rája* still holds the bow, but he has a sash in fig 20 The letters on the area are new, but hardly legible, and only on the reverse of fig 22, can we attempt to decypher [illegible] a portion perhaps of the former name, *Vikrama* Fig 20, was given to me by a lady, fig 22, by Mr CRACROFT

Fig 21, is a thin one-sided coin found by Lieut CONOLLY, in the ruins of Kanouj, the letter beneath the left arm is here [illegible] or *kra* its meaning doubtful.

The next two coins were assorted together in the plate, because they had both two figures on the obverse, they are, however, essentially of different periods, and, if our former reasoning be correct, fig. 23, (of Lieut CONOLLY's collection,) should be classed before the last two, or even earlier than any of the set, for it is difficult to form any Sanscrit name out of the characters on either side Lieutenant CUNNINGHAM has kindly favored me with an impression of a similar coin in his possession, by which the legend of the obverse appears to be composed of the letters [illegible] *kragipta paragu (pta)*

In the obverse of the coin before us the same letters may be traced, but after the [illegible] follows a [illegible] making the word *kragipta paraguja*, a strange and unintelligible compound. On the reverse, the first three or four letters agree with the above, but the final is rather a [illegible] *pha*, and the one preceding it is closed at the top, making it [illegible] *va*. These may be faults of execution in a foreign artist, but they place the interpretetion beyond conjecture

Fig 24, presented to me by Mr G BACON, as discovered (or rather purchased) at Kanouj, has already found a place in Prof. WILSON's plates The dress of the male and female on the obverse is completely Hindu, as is the attitude of the reverse The legend was given in facsimile in the *Researches* thus. [illegible] and may be read, with allowance for imperfections, [illegible] *Sri Chandra gupta.*

Fig 25 We now come to an old acquaintance, the happy discovery

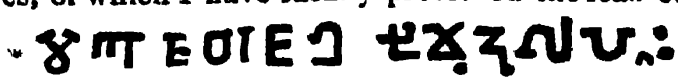
Hindu Coins Canouj Series

J Prinsep sc

of Lieut. CONOLLY, which has acted as a key to all the rest. An account of it is inserted in vol iii p 227, where, however, on Dr. MILL's authority, the name was read as *Srí mad Ghavo Kacho*, from a misapprehension of the letter *m* The reading commences on the obverse with the full title ཆཧཱིཛཱ་ཨཱིཛཱ་ཤྲཱི* *Mahárája Adhi Raja Srí* (the name is cut off), and on the reverse ཤྲཱིསཆབཱིཀྲཱཙཿ *Srí* SÀCHHA VIKRAMA The second word is doubtful, and without sense perhaps it may be *Srí Pradyu*, 'the heavenly,' or simply *Srí mad Vikrama*

Fig. 26, is another most important acquisition, for which we are beholden to Colonel STACY An imperfect drawing of a similar coin appeared in WILSON's plates, which only misled as to the device, as well as the legend: both are here equally distinct The Rája sits on a chair playing on a kind of harp, whence we learn his accomplishments, while the margin teaches us his titles and part of his name ཆཧཱིཛཱ་ཨཱིཛཱ་..དྲཱ་ཀུཔྟ *Mahá Rájádhi Rája Srí.. dra gupta* The first letter of the name is the only one at all doubtful, and it is possible that the name may be simply a repetition of the one more unequivocally legible on the reverse, viz སཱཙཱདྲཱ་ཀུཔྟ SAMUDRA GUPTA.

I insert here the facsimile inscription of the duplicate coin of the Researches, of which I have luckily preserved the lead-cut.



Its identity with the above is manifest, *Mahárájádhi raja Srí Samudra-gupta.*

Fig 27, is a sorry duplicate of the CONOLLY coin, belonging to Colonel STACY, with a variation of the epigraphe བཀྲཱཙཿནཱིནཙཱ་ཀུཔྟ *Vikrama Narinamagupta.* I incline to think that the ཙ is intended for ད, and that the word should be *Narendra-gupta*, or it may be intended for *Naráyana-gupta* The name on the reverse corresponds with fig. 25, *Sri pradyu Vikrama*

Fig 28, is from a sketch of a coin in Lieut A CUNNINGHAM's cabinet at Benares He has since sent me faithful wax impressions, which expose slight inaccuracies in my outline From neither, however, can the inscription encircling the hero triumphant over the lion be satisfactorily deduced, it may possibly be ཤྲཱིབལཔཱཀྲཱཙཿ *Sri bal parakrama*, the letter on the field is, in the facsimile, ཀུ *ku*

On the reverse we are more lucky, for the legend, which I take to be the prince's name, ཀུཙཱ་ཀུཔྟ *Kumára-gupta*, "the protected of Mars,"

* In using the Tibetan character, sometimes, we are forced to omit the long *a* vowel mark, which is merely a prolongation of the *matra*, or horizontal head-stroke in the coin writing.

is illustrated by an effigy of the wife of KÁRTIKA, or KUMÁRI' feeding his favorite bird the peacock The same reverse is repeated in the two following varieties, where, however, the female is seated on a wicker *morha*, or stool, as in fig 26.

Fig 29, a coin of Lieut. BURT's, and its fellow, (presented to me by Miss WATSON,) introduce us to a perfectly novel device. The Rája is here mounted on a horse dressed in native trappings. It would be a loss of time to guess the superscription of 29. The same letters occur on both sides of fig. 30, and are plainer . they appear to be *Ajita Man'atri ṣu* .

Two coins of the same style are depicted as figs 17 and 18, of WILSON, who states that the natives designate them the coins of HIRANYA KASIPU I presented to the Asiatic Society in 1830 a bronze image of a horseman dug up in *Bandelkhand*, which bears as close an affinity to this class of coin as the *Ventura chapras* of Plate L does to the elephant coin.

Of the next two coins, No 31 had been added to my cabinet by Miss WATSON, and had excited not a little curiosity, before Colonel STACY's cabinet fell under my inspection, my attention was immediately attracted to his more perfect duplicate, (fig 32,) which at once confirmed the reading I had as yet feared to pronounce, although the image of a richly bedecked horse, unfettered by bridle or rider, had led me to imagine some allusion to the celebrated horse-sacrifice undertaken by one or two of the most powerful of the ancient sovereigns of India. The deficient letters of one reading happen to be every where supplied by the other, so that there can be no doubt about the whole [illegible] *Asvamedha Parákrama*, "the hero or paramount hero of the Asvamedha." The female holding a chowry, to fan the flies from the devoted horse, is I presume one of the princesses acting as his attendant. Under the horse on both coins is the syllabic letter [illegible] *Sa* History must be searched, if indeed any history can be found, ere we can determine who may lay claim to this fine and curious medal, which for the present closes our series of the earlier Kánouj coinage.

Fig. 33, of which Dr. SWINEY has numerous specimens, is inserted in this plate because of the style of its alphabet. The inscription is read by Dr. SWINEY, [illegible] *Mahárája Ganapati*.

It will be right to mention here, that one more of the *Gupta* family appears on a coin in the WILLOUGHBY collection depicted in the Asiatic Researches Plate I. I have seen the coin itself, and the facsimile [illegible] is correct, though the two first letters are of doubt-

ful nature. Mr. WILSON read the whole *Nara-gupta:* Dr. MILL, *Sasi-gupta.* I have nothing new to offer on the subject*.

Having now ocular demonstration of the intimate relation of the Indo-Scythic with the 2nd class of Hindu coins, the question naturally suggests itself, whether history is altogether silent on a point of such curious interest?

In first contradiction of such an inference, we find that the Indo-Scythic origin of the Rahtore dynasty of Kanouj has been advanced on very plausible grounds by the highest authority on this subject, Col. TOD, the annalist of Rájputána† He obtained from a *Jati,* (*Yati*) or Jain priest of a temple at *Nadolaye,* an ancient town in *Márwár,* a genealogical roll of the Rahtores, about 50 feet in length. "After detailing the usual theogony, it describes the production of the first Rahtore 'from the spine *(raht)* of Indra,' the nominal father being 'YAVANASWA, prince of *Parlipur*' Of the topography of *Parlipur,* the Rahtores have no other notion than that it was in the north: but in the declared race of their progenitor, a *Yavan* or Greek prince of the *Aswa* or *Asi* tribe, one of the four which overturned the Greek kingdom of Bactria, we have a proof of the Scythic origin of this Rajpút family"

May it not be possible that the *Yavana* prince here alluded to may be the Azos (in Pehleví *Azo*) of the series of Bactrian coins published in my last notice? The Sanscrit word *Aswa* would be pronounced *Aso,* and be thus written in Persian or Pehleví (as *deo* for *deva,* &c.) The number and variety of his coins would imply that the name or title was that of a considerable dynasty, and some of the devices, for example, Nos. 10, 11, Plate XXII of the goddess holding a cornucopia, may have naturally been the prototype of the Kanouj coins.

A considerable interval (from 300? to 470 A. D) provokingly occurs between the name of YAVANASVA and the next prince, in Col. TOD's list—whether also omitted in the Jain original, or filled up only by barbarous and uninteresting names, we are not informed The blank is relieved at length by the name of a genuine Hindu, NAYANA-PÁLA, but it happens that the missing part is the very one that could alone throw light upon our numismatic discoveries. Several coins (including the whole series of Kadphises and Kanerkis, intervene after

* Since finishing my plate, I have received a drawing of a small silver coin from Mr TREGEAR, found at Jaunpur, having a head on one side, and on the other a bird, with outspread wings, under which in clearly defined characters is [illegible] *Chandra-gupta*

† TOD's Annals of Rájasthan, vol. ii. p. 5.

Azos, before we are brought to the absolute link coins of the Indo-Scythic and Hindu dynasties.

The name of *Náyana-pála* bears so near a resemblance to *Narâyana-gupta*, that a strong temptation arises to regenerate Colonel Tod's prince in him, on the same grounds on which his predecessor has been brought to life in Azos.

Indeed it would hardly be exceeding the bounds of legitimate conjecture, (where all is mere conjecture,) to adopt a historical representative of our Kanerki himself in the Kenek-sen of Colonel Tod, *Sén* being according to him merely a martial affix, equivalent to General or *Sénapati*.

Kenek-Sen, the founder of the Balhára dynasty according to the concurrent testimony of all the chronicles consulted by Tod, emigrated to *Saurâshtra* about the year 144 A D*. "from the most northern province of India, *Lohcote* or *Lahore*." In date and locality this origin would agree well with Kanerki. nor would it even set aside the former supposition of the same prince being the Tartar Kaniska of the Cashmír history, since that prince is made the sixth in succession after Asoka, the great patron of the Buddhists, who is placed by their chronology in 250 B. C, but who, when the correction for *Chandra-gupta* is applied, will fall full 50 years later.

In reasoning upon the probable seat of these obscure dynasties, it is by no means necessary to confine ourselves to one spot The annals of *Mewár*, *Delhi*, *Malwá*, *Saurâshtra*, shew a continual intermixture, as different princes acquired the ascendancy

Kanouj has been fixed upon as the locale of the present class of gold coins, for the obvious reason that they are most frequently found in its ruins, not that any history ascribes them to this town, for the history of Kanouj is a perfect blank anterior to the fifth, we may even say the tenth century and if the town had been suddenly involved in destruction, it is only certain that the coins found afterwards in its ruins would be those of the particular epoch, whether coined there or elsewhere.

There are arguments in favor of placing the seat of government further to the west, for instance at *Ujjain* (*Ujjayini*) In the first place, the perfect identity of the coin-alphabet with that of the *Guzerát* inscriptions lately decyphered by Mr. Wathen† .—then, the prevalent worship of the sun in *Saurâshtra*, and at *Ujjain*, where this object still forms the distinguishing symbol on the coinage‡, agrees

* Tod's *Rájasthan*, I 215.

† See preceding page 480.

‡ The greater banner of Mewár also exhibits a golden sun on a crimson field, Tod I. 137.

well with the effigy of OKPO and APAOKPO on the Indo-Scythic coins* Again, the peacock of many of the *Kanouj* reverses is found on one of the principal series of *Sauráshtra* coins, as will hereafter be shewn, and Colonel TOD states that this sacred bird of the Hindu Mars (KUMÁRA) was the favorite armorial emblem of the Rájpút warrior. Lastly, many of the names on these coins may be traced in the catalogues of the *Málwá* and *Guzerát* princes, *Vikrama, Chandra, Samudra, Kumára, Ajita,* &c. the last four are coupled it is true with the family affix *pála* instead of *gupta*, but both of these have the same signification

In the *Rajávali* of Rája RAGHUNÁTH, quoted by WILFORD as the chief authority in Central and Western India, we find a sovereign named VIKRAMA reigning in the year 191 A D and succeeded, or rather supplanted 90 years later, by a SAMUDRA-PÁLA The deeds attributed to these two are supposed to be merely an interpolation of the fabulous history of VIKRAMÁDITYA and SÁLIVÁHANA†. but the occurrence of these two names is very curious, allied to the circumstance and appearance of the two coins, figs. 25 and 26, of Plate XXXIX

The only other instance of the occurrence of the name SAMUDRA-GUPTA, that I am aware of, is on the Allahabad pillar, where he appears as the son of a CHANDRA-GUPTA, and from the close similarity of the alphabets of the coins and of the láths, no reasonable doubt can be entertained that they relate to the same individual—a fact predicted by Dr MILL in his valuable observations on this new race of kings (vol iii p 267), to which the reader is referred for all the light that collateral history affords on the subject.

The name of VIKRAMA is referred by MARSDEN to *Bikram-tschand (Vikrama-chandra)* of the fourth century, in ANQUETIL'S list of the kings of Central India‡ KUMÁRA-PÁLA is also one of the many names of SÁLIVÁHANA.

There is no reason however why *Kanouj* should not at some periods have been united under one sovereignty with the western provinces. The great VIKRAMÁDITYA (whose appellation in full is found on one of MARSDEN'S coins) conquered *Indrapreshtha*, and extended his sway over the whole of India.

The Rahtore sovereigns of *Kanouj*, after its conquest by NAYANA-PÁLA, Col. TOD says, assumed the title of *Kam dhuj (Káma dhvaja)*.

* *Bhatarka* (sun-cherished) is a title of the earliest Balabhi Rája's in Mr. WATHEN'S inscriptions, p. 480.

† As. Res. IX. 135. ‡ Num. Orient. II. 727.

If this alluded to their armorial insignia, we may thus find an explanation of the standard on the earlier coins,—and it may be equally applied to the *Aparajita dhvaja* of fig. 16.

Another curious circumstance is mentioned in Col Tod's chronicles of *Márwár*, that may help us a step forward in the investigation of this obscure history It is there said, "Dharma-Bhumbo had a son, Ajaya Chandra For twenty-one generations they bore the titles of *Rao*; afterwards that of *Rája*." We are again left in the dark as to who first assumed the title of *Rája*, but as we find the title *Rao* in Greek visible on the very latest coin that bears an inscription in that character, while on the fine gold coin discovered by Lieut Conolly, of Vikrama, fig 25, we have the title *Mahárája Adhirája Sri*, quite distinct, it must have been between the two that the change of title was assumed But I should be inclined to interpret the above passage in the *Yati's* roll, as meaning that up to Aji Chandra, or *for the* 21 *generations preceding him*, the title *Rao* had been used, and henceforward that of *Rája* was adopted. for why should the historian allude to the circumstance until the change of title actually took place? Moreover, there are only 16 generations mentioned from Aji Chandra down to the last of the Kanouj sovereigns, the celebrated Jaya Chandra or Jey-Chand, anterior to whom the title was certainly borne, for we find it on the coins of Vikrama, Samudra-gupta, and others, names not included in the list, but which we know from the style of the Deva Nágari character must have belonged to a much earlier epoch than the seventh or eighth century, in which Bhumbo is placed

The Rev. Dr. Mill has led us to put little faith in the authority of the bards and panegyrists of the native courts, and it must be confessed, that the contrast of Colonel Tod's genealogy with the incontestible testimony of the Sanscrit inscriptions read by Colebrooke, Fell, and Wilson, is enough to perplex the most ingenious amalgamist! We must then maintain a thorough independence of all such traditionary documents, and adhere in preference to the faithful evidence of monuments and coins In the present case, I have shewn how these confirm one another in a remarkable and unexpected manner, in regard to the names on the Allahabad pillar, inscription No. 2, all of which re-appear on these early Kanouj coins In a subsequent paper I shall produce equally convincing evidence that those of the Benares and Delhi inscriptions are reproduced upon a second series of Kanouj coins of a much more modern character.

All then that can be now attempted is, to recapitulate the names

that have been brought to light in the present investigation, names for which we are indebted to the joint contributions of not less than a dozen friends*, leaving the proper arrangement of them to a more advanced stage of our knowledge than we at present possess.

The following are the names and titles that appear on the coins of the two last plates

1. *Sri Aparajita dhvaja Kumáragupta parákrama*
2. *Sri Vikrama Chandra*
3. *A'pattí rurhah*, or *Bhupati rurha.*
4. *Kragipta paragu (pta)*
5. *Chandragupta*
6. *Maharája adhi rája Sri . Sri pradyu Vikrama*
7. *Sri Vikrama Narendra gupta*
8. *Mahárája adhi rája Sri Samudragupta*
9. *Srí bal vikrama Kumáragupta* .. . ..
10. *Ajita mañatrigupta*
11. *Asvamedha parákrama*

To these may be added the

12. *Vikramáditya* of MARSDEN's collection, and the
13. *Sasi-gupta*, of Prof. WILSON's plates.

[To be continued]

IV —*Application of Iron Rods, proposed to compensate for the strain occasioned by the tension of the strings upon Piano Fortes, thereby to prevent warping, and to render them more durable and better adapted to keep longer in tune. By Col* D PRESGRAVE

By a notice in your Journal, No. 17, May 1833, of some improvements that had been made in square piano-fortes, I am induced to send an account of a scheme, which I devised and put in practice in January, 1833 The object of which is to strengthen the instrument, so as to prevent warping or twisting, thereby rendering it more lasting and less liable to get out of tune

It is stated in the above-quoted article, that it is by the slipping of the round iron pegs in their wooden sockets, that a piano gets out of tune, but I am inclined to think, that this is not to be attributed so much to that circumstance, as to other causes, such as change in the level of the instrument by the unceasing strain or tension upon it; the effect of temperature on the wires, and of the atmosphere on the porous material (wood) of which the instrument is constructed. Whilst pianos are very new, they require comparatively little tuning;

* VENTURA, KERA'MAT ALI, WADE, TREGEAR, CUNNINGHAM, BURT, STACY, WATSON, SMITH, SWINEY, CRACROFT, and CONOLLY.

but as they increase in age, so do they, in consequence of progressive warping, require it the oftener.

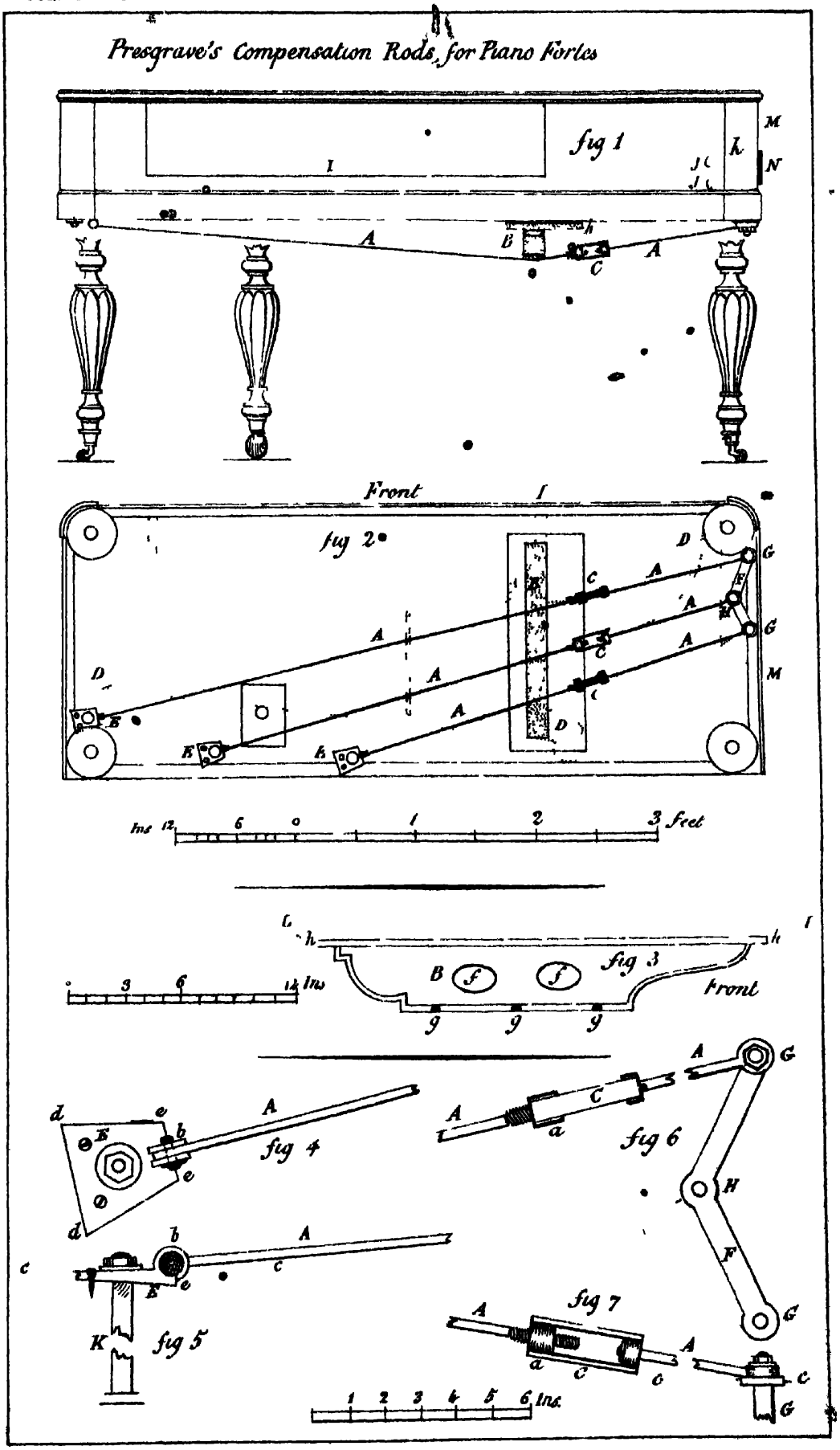
The constant tension of the strings effects such a strain upon the piano, that the opposite corners (in the direction of the wires) of almost every one, however new, will be found, if accurately examined, to be turned up more or less Thus it will be easy to conceive, that so long as the *bed* retains inflexibly its straight or level form, the piano will last, possessing the property of remaining *longer* in tune, and of being more easily tuned but let the strings once gain an ascendancy over the horizontal level of the bed, and the turning up thereof will proceed with accelerated speed

In Calcutta, where people enjoy the means, and have the opportunity, they do not keep their pianos beyond a year, but pay for an annual exchange, thus getting rid of them before the warping gives annoyance, and is not so great as to render them unsaleable, but it is not so with people situated away from the metropolis, who are compelled to take whatever pianos are sent them, which they are doomed to use for years, until they may be seen with two inches and even more, turn up in this state many are quite unconscious of the defects of their pianos, and attribute their not remaining in tune to climate, to want of skill in the tuner, or to any other cause, rather than to the deplorable state of the instrument

To prevent this warping, several plans (and patents I believe) have been adopted by makers Some of them consist in the application, in various ways, of plates and bars inserted at the back, and in the inside of the piano One of the plans adopted is, that of a square iron bar, about three and a half feet in length, and upwards of 15 lbs in weight, screwed (in the direction of the wires) to the underside of the piano, with five *wood-screws*, scarcely weighing three drachms each, and a slight bolt, to connect the end of the bar, by means of a nut and screw to the end of the piano, indeed, if this bar were even more substantially fixed to the instrument, it does not appear to me calculated to be of any material service in strengthening it

In January, 1833, I took to pieces an old piano belonging to a friend, with the intention of trying to straighten it During this operation, whilst reflecting on the immense pull that the wires constantly exert beyond all power of the bed, as at present constructed, of any piano to resist, it occurred to me, that if a counter strain to the wires *above* could be contrived and attached to the opposite or *underside* of the bed, the desired object of keeping the piano straight, thereby rendering it far more durable, and disposed to keep longer in tune, would be accomplished.

Presgrave's Compensation Rods, for Piano Fortes



J.B Tassin's Lith. Press

The compensation for the strain of the wires *above* is effected by placing iron rods (two or three) in a direction parallel with the strings, but *below* the bed of the instrument. The rods are fixed at their extremities by a joint, to iron clamps, which are screwed to the underside of the bed, and bolted at one end of the piano, through the bed and block that holds the tuning pegs, and at the other, through the bed, block, and plank The extremities of the rods being thus *fixed*, their power is obtained by drawing them over a stout wooden bridge, placed at about two feet from the end, just below the keys of the highest notes, and then drawn by adjusting frame, nuts, and screws, as tight as is necessary; as will, I hope, be distinctly shewn by the accompanying plate and description

Fig 1, is an elevation of a piano, which shews one of the rods, A, as applied below, drawn by the adjusting screw C tight over the bridge B (The same letters apply to all the figures) The bridge B is shewn on a larger scale at fig 3 By the drawing, fig. 1, the end of the bridge B seems to present an unsightly appearance, but it is not so in reality, the rods crossing the bridge, at some distance from the front, as at I in figs 2 and 3, and so little are those visible, that they would not be observed, unless attention was drawn towards them

The frame or adjusting nut C turns at one end on a knob or head, formed on the end of the (short) rod, having a flat brass ring interposed (to reduce the friction) between its head and the inside bearing of the frame. the other end of the frame is made *thick*, as at figures 6 and 7, having a screw formed within it, to receive that on the end of the rod. The screws are raised *above* the surface, and not cut into the thickness of the rods

Fig. 2, represents the piano, turned upside down A A A are the rods, running in the same direction with the strings of the piano, intended to be expressed by the shaded part between D D D

E E E, clamps with joints *b*, figs. 4 and 5, to receive the ends of the rods, in which they are held by a small bolt The clamps are sunk in the wood, as shewn by the dotted line *c c*, are *broader* towards their outer ends, *d d*, and *thicker* towards *e e*, that they may oppose more surface in the wood, against the tension or drag of the rods A —F figs 2 and 6, is a clamp of another description, (it was applied to one of the pianos operated upon,) by it the bolts fixing the ends of the three rods are connected. the two outer bolts GG, passing through the end plank of the piano, and the centre one, H, through the bed, block, and metal plate, on which the wires are fixed, instead of thus connecting the ends of the rods by one clamp, separate clamps like EE, figs 4 and 5 have been used. the clamps EEE, besides

being bolted *through* the piano, are each further secured by two wood screws

The exact spots for fixing the clamp at both extremities of the rods, must be determined, according to circumstances, by the judgment of the individual applying them, because pianos vary in their internal construction, on which account also, it is obvious, that they would be applied, with the greatest advantage, by manufacturers in the first construction of the instruments, as the makers would have it in their power to accommodate the internal arrangement of the pianos to the most desirable position for fixing them

The rods should be applied to new pianos, before warping takes place, they may be put to old instruments, though not with equal advantage, from the circumstance of the *blocks* of wood placed at the end, under the sounding board, together with the *iron bar*, which is screwed at one end on to the block, bearing the tuning pegs, fixed at the other to the metal plate, on which the strings are hooked, being thrust, by the warping of the instrument, out of their places, for when a piano has been straightened, they will be found to have parted from those original bearings, on which mainly depended the strength of the piano However objectionable this loss of bearing may be, the power of the rods is nevertheless the more clearly indicated by their sustaining the piano in its straightened state against the tension of the strings

Fig 3, B, is the bridge, *f f* are holes cut obliquely through it, to lighten it, *g g g* are the places where the rods cross it, the bridge is $2\frac{1}{4}$ inches thick, and with the plank *h h* above it, in depth $3\frac{1}{2}$ or $3\frac{3}{4}$ inches, the dotted lines at I and L shew the body of the piano, across its breadth

Fig 5, K, is the bolt that fixes the clamp E, by passing through the block, (bearing the tuning pegs,) the bed of the piano, and by a nut and screw fastening below the clamp. The whole of fig 5, is represented upside down

The rods are of round iron wire, $\frac{3}{10}$ of an inch in diameter Hitherto, not less than three rods have been put to a piano, but perhaps two might be found sufficient It is possible to draw the rods too tight, especially when first put on, and if the piano was much warped; for the instrument does not accommodate itself to the new tension for some time. it will therefore be necessary, until it settles, to examine it daily, for if the rods are not slackened by turning the adjusting screws, the strings might be endangered.

Many pianos may be seen with the end plank M figs 1 and 2, split, occasioned entirely by the pull of the strings The bolts GG, figs. 2 and 6, secure the plank against this failure. The block

k, fig 1, on which, in the absence of a metal plate, the strings are hooked, is also, by the tension of the wires,* liable to separate from the end plank M In two instances, where this had occurred, previous to applying the rods, bolts with their heads resting inside at *jj* were passed through the block *k*, plank M, and a broad substantial plate of polished brass N, on the outside of which they were evenly rivetted

The foregoing plan for keeping piano-fortes straight was, I have been informed, mentioned to Messrs BROADWOOD AND CO in London, but from what they said, I am inclined to think, was in the absence of drawings, or written description, imperfectly explained to them They observed, that "they found the iron bar, as offering a resistance to the pull of the strings of the piano-forte, would best effect the purpose" If the iron bar here alluded to is that which props between the block bearing the turning pegs and the metal plate on which the strings are hooked, it must be well known to those who are conversant with the mechanism of piano-fortes, that although it may be of some service, it is quite inadequate to prevent warping in India A piano that had warped an inch and a quarter, but which had been fitted with one of those bars, was straightend by weight and other means, and secured with a set of three rods, when the iron bar, no longer reaching its original bearings, required to be lengthened before it could be again applied

The rods have been successfully applied to five piano-fortes, and approved of by judges competent as well by their musical as by their mechanical skill Although possessing powerful command over the instrument, they do not, as it may be supposed solid iron bars would, at all check, as far as the vibrations of sound are concerned, the elasticity of the pianos

When a piano-forte warps, a corresponding twist is gradually communicated to all the keys, throwing them out of their places, and causing them to stick it also detaches the hammers partially from their own strings, and makes them touch those of the neighbouring notes, thus occasioning an unpleasant discord

Piano-fortes would probably, without detriment to their tone, be greatly preserved and defended against the effects of climate, particularly the damp atmosphere of the rainy season in India, by the application of good *oil* varnish, such as is used by coach-makers, not only to the under sides and backs of pianos, which are invariably found in the state left by the joiner's plane, but also to the beds, side, ends, and blocks within, wherever it can be spread, prior to the putting in of the sounding board, keys, dampers, &c. &c.

V —*Notice of two beds of Coal discovered by Captain* J R OUSELEY, *P A to the Commissioner at Hoshangabád, near Bara Garahwára, in the Valley of the Narbada, 5th Jan* 1835. *Pl LIII.*

Hearing of black stones being found near *Mohpáni*, seven or eight miles from *Chicheli*, and 12 or 14 from *Garahwára* proper, on the *Sakar*, I went there, and found, as they described, black stones, but placing them on the fire, they did not burn They are in strata of 10 feet to 15 feet thick, solid masses, perpendicular, (strata,) as if thrown up by some convulsion of nature, intermixed with strata of grey yellow and brown sandstone, mica-looking grit, (vide A, plan of coal bed,) and marl, on the left bank of the Sita Rewa, which flows along the bottom I proceeded up the bed of this nalla for about two miles, when I came upon what appears to me to be a very fine bed of coal

The river *Sita Rewa*, flowing from the south, here emerges from the hills at the N E angle of *Nimbuagarh*, a name given to one of the hills within half a mile of the coal bed The current has uncovered for 100 yards the coal its thickness is unknown as yet, that exposed, being about 14 feet thick After so many attempts at discovering coal, which only proved to be mere seams of anthracite, I felt much gratified at discovering so large a bed The road by which I proceeded up and along the river, I found very bad, but I returned by a most excellent one, being that used by the villagers for bringing wood from the jungles the whole way being a plain, and practicable for any kind of carriage

At the junction of the *Hard* and *Sakar* rivers, I also discovered a bed of coal, seemingly of as good quality the seam about three feet thick, but on account of the magnitude of the other bed, this became an object of less inquiry I ascertained also that limestone and iron ore were in abundance

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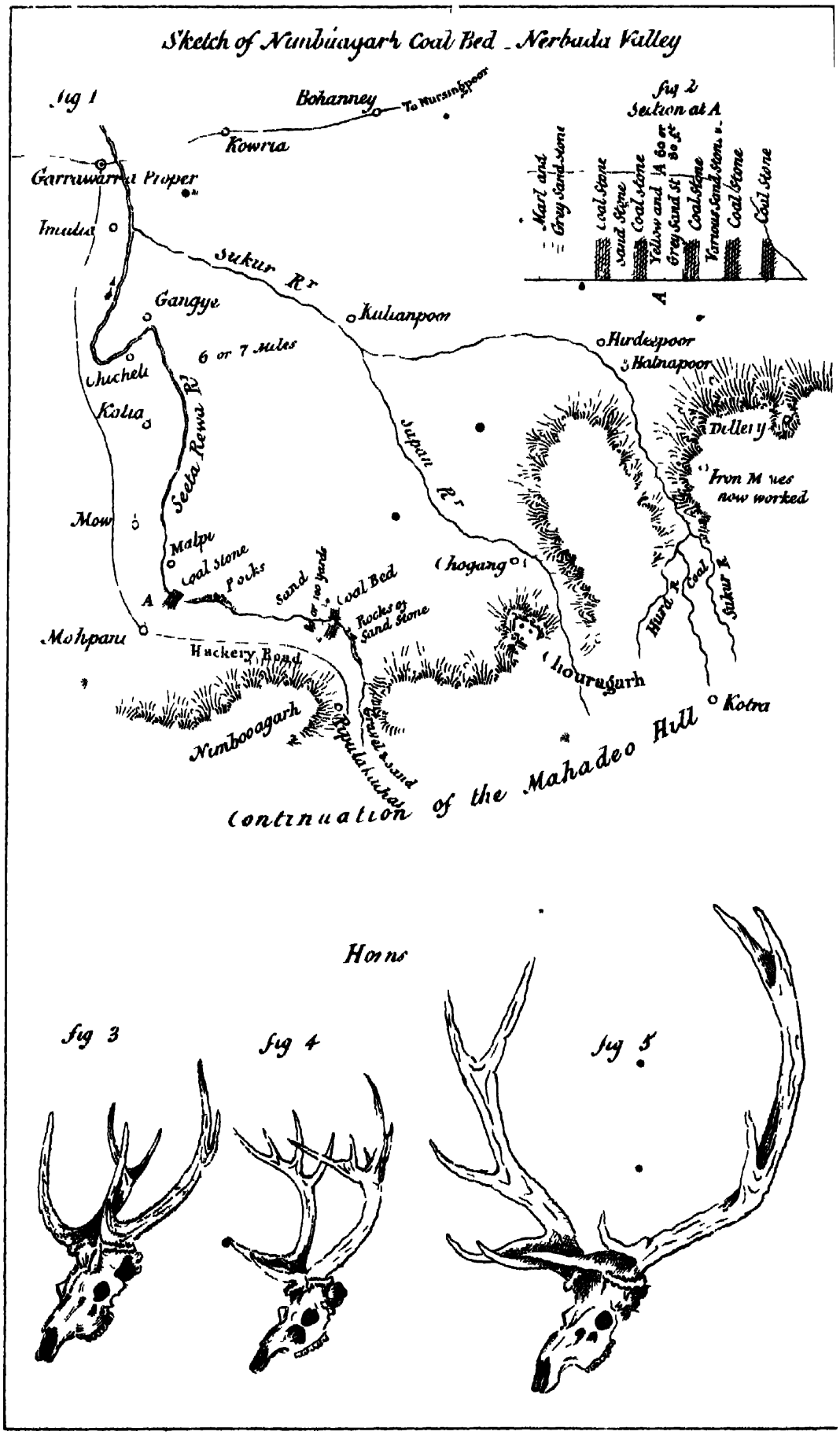
VI —*Specific name and character of a new species of Cervus, discovered by* B H HODGSON, *Esq in* 1825, *and indicated in his Catalogue by the local name of Bahraiya*

In the catalogue of the Mammalia of Nipal, a new species of Cervus is designated by the local name of *Bahraiya*, and it is therein remarked, that the species forms, with *C Wallichii*, a chain of connexion between the Elaphine and Rusan groups The horns, which at once fix the specific character and its novelty, were sometime back given in the journal. But these notices having failed to fix attention, and the animal in question being still confounded with the *Saumer*, *Jerow*, or *Jarai*, it may be as well to define the species more precisely, and to give it a scientific name

Genus—CERVUS. Sub-Genus *Elaphus*, (English Regne Anim) Cervus *Elaphoides* Stag-like deer, mihi

C El brown-red deer, with moderate-sized, stout, pale horns, branched at the summits, as in Elaphus, but with no bezantler, and only one browantler to each beam. In stature and aspect, mediate between Hippelaphus and Elaphus Icon penes nos *Bahraiya* of the Cat Nip. Mam, called *Máha* in the Western Tarai.


Sketch of Nimbuagarh Coal Bed _ Nerbada Valley
fig 1
Bohanney
To Nursingpoor
Kowria
Garrawarra Proper
Imulia
Sukur Rr
Gangye
Kulianpoor
6 or 7 Miles
Chicheli
Kolia
Seeta Rewa Rr
Sapan Rr
Hirdeepoor
Hatnapoor
Dillery
Iron Mines now worked
Mow
Malpi
Coal Stone
Rocks
Sand
Coal Bed
Rocks of Sand Stone
Chogang
Mohpani
Hackery Road
Chouragarh
Hurd R
Coal
Sukur R
Kotra
Nimbooagarh
Ripulakuhal
Gravel & Sand
Continuation of the Mahadeo Hill
fig 2
Section at A
Marl and Grey Sand Stone
Coal Stone
Sand Stone
Coal Stone
Yellow and Grey Sand St
Coal Stone
Various Sand Stone
Coal Stone
Coal Stone
A
Horns
fig 3
fig 4
fig 5

Remarks —The horns of this animal differ from those of any known species In size, curvature, and thickness, they agree with those of the Hippelaphus of DU VAUCEL and of CUVIER and are considerably less large than those of Elaphus But in colour and rugosity, they depart from the former, to approach the latter, with which they have, besides, a strict correspondence in the numerous snags crowning their summits, and also in the *anteal* insertion and *forward* direction of the browantler The absence of the median process, and the singleness of the basal one, are points of similitude with the Hippelaphine or Rusan group, in which, however, the basal or browantler has always an *oblique* insertion and *upward* direction

WALLICH's deer, again, has *two* browantlers directed forwards, but has only a *single superior* process from the beam, and it is almost deprived of tail, whilst that member is more developed in the Rusan than in the Elaphine group The dark and shaggy coat of the Rusans is not traceable in *Wallichii*, which is even paler than the European red deer In these respects, our animal more nearly than *Wallichii* approaches the European stag, but in the singleness of his browantler, he recedes further from the European type than does Wallichii He serves, in all respects, to form a fresh and striking link of connexion between the Hippelaphine and Elaphine groups, which groups, H SMITH supposes to be respectively the Asiatic and European types of *Cervus* The *first* discovered link in this connexion was WALLICH's deer *Elaphoides*, (mihi,) constitutes *another*, equally distinct and remarkable In the synoptical arrangement of the English Regne animal, *Elaphoides* must have a place immediately after or before *C Wallichii*, with which species our's will serve to smooth the transition from *Elaphus* to *Rusa* The crowned summits of the horns, each of which bears four or five processes, inclusive of the point of the beam, at once distinguishes *Elaphoides* from the Jerows, Jarâis, or Saumers of the continent and islands of India. All the latter belong to the Rusan group, and in their manners are remarkable for exclusive adherence to the heaviest forest jungle, whence they frequently penetrate into the proximate mountains or hills On the contrary, *Elaphoides* (the *Bahraiya* or *Mahá*) never was known to enter the mountains, nor does he, save casually, resort to the depths of the forests His lair is on the *skirts* of large forests, amid the grassy and swampy glades which abound in such vicinities Lastly, his female is of a whitey-brown or pale dun hue: whereas the females of the Rusans are dark-hued, as the males.

Explanation of Plate LIII.

Fig 3. *Cervus Elaphus*, Nipalese *Sál* forest vulgo, *Bára Sinha*, type of Cervus

Fig 4 *Cervus Elaphoïdes*, mihi vulgo, *Bahraiya* and *Mahá*, Nipalese and Western Tarais, osculant

Fig. 5. *Cervus Hippelaphus* type of *Rusa*.

Note —All three heads on an uniform scale. The stag's horns shew the two basal processes, and the median on either beam, but the terminal crown of snags is not developed, owing to youth Each horn has but one superior process from the beam, instead of three or four.

VII —*Proceedings of the Asiatic Society.*

Wednesday Evening, the 2nd December, 1835

The Rev W H MILL, D L Vice-President, in the chair

His Excellency Sir HENRY FANE, Commander-in-Chief, and Mr CHARLES AUGUSTUS NOTT, proposed at the last meeting, were ballotted for, and duly elected members

Read letters from Colonel W H SYKES, and Professor W BUCKLAND, acknowledging their election as honorary members

Read letters from H HARKNESS, Esq Secretary to the Royal Asiatic Society, and NICHOLAS CARLISLE, Esq Secretary to the Society of Antiquaries, acknowledging the receipt of copies of Mr CSOMA's Tibetan Grammar and Dictionary

Read a letter from Dr LAUTARD, Secretary to the Royal Academy of Marseilles, proposing an interchange of publications, and inclosing a diploma of honorary membership for the Secretary of the Asiatic Society, also presenting two volumes of the "Histoire de l'Academie de Marseilles"

Resolved, that copies of the Researches be sent in return to Marseilles.

The recent change in the currency of the Bengal currency, having been brought under consideration by the Secretary, it was

Resolved, that from the 1st January, 1836, all quarterly subscriptions and fees of admission to the Society, be collected in the new rupee, viz. 32 Company's rupees for the admission fee, 16 Co 's Rs for the quarterly subscription of ordinary members, and 4 Co 's Rs for the yearly subscription of Associate Members

Mr CSOMA DE KOROS, in a letter to the Secretary, intimated his intention of quitting Calcutta for the Western Provinces, and reqnested the loan of some Sanscrit books, which was granted.

Library.

Read a letter from M ROUY DE ROCHELLE, President of the Central Committee of the Geographical Society of Paris, forwarding a copy of Bulletin de la Societe de Geographie, vols 1st and 2nd.

The following books were presented on the part of Lieut.-Col W H. SYKES, the Author

A Catalogue of the Mammalia and Birds, observed in Dukhun.

On the Atmospheric Tides and Meteorology of Dukhun

Description of the Wild Dog of the Western Ghats

Some account of the Kolisura Silk-worm of the Dukhun.

Proceedings of the Statistical Society of London, No I vol 1st

The following works by Sir J F W HERSCHEL

A list of Test Objects, principally Double Stars.

Notices on the Orbits of revolving Double Stars.

Micrometrical measures of ditto

On the Satellites of Uranus, and Observations of BIELA's Comet.

Also —

The Indian Journal of Medical Science, No 24—*by the Editors.*

Two copies of Impression of the Orrery and Simple Illustrations of Eclipses, translated into Bengali by Máhá Rajáh KALIKISSEN—*by the Author.*

Meteorological Register for October, 1835—*by the Surveyor General.*

DUMOULIN's Gulistan, 1807, and Karab-ud-din, a Medical work, MS were presented—*by Professor H H Wilson*

The following books received from the booksellers :

LARDNER's Cabinet Cyclopedia—Germanic Empire, vol 3rd.

Ditto ditto—Greece, vol 1st

Literary and Antiquities

Read a letter from W H. WATHEN, Esq forwarding a memoir on Chinese Tartary and Khoten

[This will be published in our next]

The Hon'ble Lieut -Col MORRISON, presented, on the part of the Author, a paper on the State of Arts of the Cotton Spinning, Printing, and Dyeing in Nepal, by Dr A CAMPBELL, with specimens.

Read a letter from Capt. T J TAYLOR, forwarding extract from a Journal of the late Major WARD, of the Madras European Regiment, regarding the inhabitants of the Varshagiri mountains in the Peninsula.

Read a letter from Lieut H ABBOTT, Mhow, forwarding an essay upon Comets, containing a new theory of the phenomena of the coma

Read a letter from G W TRAILL, Esq forwarding copy of an inscription in the nail-headed form of Sanscrit in Kemaon.

Read extracts of a letter from Dr BENZA, on the subject of some ancient coins dug up in a 'cairn' on the *Nilgiris*

From Lieut A CUNNINGHAM, at Benares, were received several very beautifully sculptured small Buddha images, discovered in the excavations at *Sarnáth*, also copies of various inscriptions, and impressions of coins.

Physical

The Secretary announced the arrival of six chests of fossil bones from the *sub-Himalayas*, forming the first dispatch of Colonel J COLVIN's munificent donation promised on the 14th January, 1835 (see page 56)

In this collection, which Colonel COLVIN's letter describes as containing the fossils in their rough matrix, as they were brought down by the native workmen employed in their excavation, a cursory inspection shewed several very large and complete jaws of the elephant, mastodon, hippopotamus, crocodile, and of other animals not immediately recognized Col COLVIN's letter of the 4th October, intimated the further dispatch of seven chests of fossils, more carefully selected and classified, of which a full catalogue has been furnished by the indefatigable collectors at Dádupur

[We postpone our account of the whole until the second dispatch arrives]

Specimens of a crustaceous animal taken from the Greenland Whale, presented by Mr STEPHENSON, with an explanatory note

A specimen of *Lophophorus Impeyanus*, by Mr C W SMITH.

A collection of bones of various mammalia, by Mr J T PEARSON.

Specimens of the soil and strata of the bed of the *Samar* lake, and of the salt in its different stages of formation, were presented by Capt A CONOLLY, Assistant Resident *Jaipur*

A note of their chemical analysis by Mr. STEPHENSON, and the Secretary, was at the same time submitted.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of November, 1835

Day of the Month.	Observations at 10 A M: Standard Barometer, at 32°	Wet Barometer, at 32°	Aqs Ten deduced	Thermometer in air	Diff. of M T. Depress.	Leslie's Dif Hygrom	Hair Hygrometer	Observations at 4 P M.: Standard Bar at 32°	Wet Bar at 32°	Aqs Ten. deduced	Thermometer in air	Diff or M T Depress	Leslie's Dif Hygrom	Hair Hygrometer	Register Thermometer Extremes: Cold on roof	Heat in sun	Rain	Wind: Morning	10 A M.	4 P M	Weather: Day-light	10 A. M.	4 P. M.
1	,918			79,5	12,8	8,3		,826	,716	1,110	82,2	9,1	8,4	84	70,2	129,		N	ne.	NW	clear	clear.	fine
2	,944	,866	1,078	80,8	8,4	7,6	87	,814			81,5	16,6			69,5	127,2		N	N.	N	do	do	clear
3	,956	,887	,069	80,8	7,9	7,1	88	,865	,745	,120	82,5	8,5	7,7	87	72,2	123,2		NE.	N	ne.	do	do	mist.
4	,99	,930	,068	81,6	6,8	5,3	94	,856	,806	,950	80,9	4,4	4,6	96	74,5	84,0		E.	se.	se	overcast.	hazy	dull.
5	,927	,946	0,981	79,1	3,5	3,6	99	,779	,830	0,949	78,6	4,2	3,5	99	71,5	80,0		ne.	ne	ne.	set. rain.	rain.	do
6	,797	,770	1,027	78,3	3,1	3,1	99	,656	,596	1,060	80,8	3,9	3,4	98	71,5	101,3	0,40	ne.	ne.	ne	overcast.	hazy	overcast.
7	,792	,845	0,957	77,6	3,1	3,1	100	,720	,798	0,932	76,8	2,8	2,8	100	68,2	75,2	2,94	N	nne.	nne.	hard rain.	do	showery
8	,914			73,4	4,2			,846			77,3	11,2			67,2	117,5		N	N	n.	cloudy	do	cumuli
9	,982	,047	,935	77,1	9,4	8,7	80	,898	,866	1,032	78,9	10,8	10,0	76	68,2	115,4		nw	NW.	nw.	clear	fine	fine
10	,985	,122	,863	75,3	8,9	7,0	87	,998	,944	0,964	78,0	8,9	10,0	76	63,2	122,4		nw	NW	nw.	do	fair	do
11	,000	,107	,863	75,0	9,4	9,0	79	,960	,020	,940	77,3	16,0	14,5	62	61,5	118,0		nw	NW	nw	do	do	do
12	,042	,194	,848	74,7	10,8	9,0	80	,967	,047	,920	76,7	9,7	8,5	82	59,5	114,0		NW.	nw.	nw	do	do	do
13	,069	,195	,867	75,1	7,1	6,0	90	,956	,997	,959	77,5	9,5	8,5	87	62,1	89,0		n.	nw	nw	do	do	do
14	,124			71,8	6,5			,970			77,0	9,1			62,1	87,0		o	N	n	do	clear	do
15	,082			76,0	8,3			,975			77,8	12,0			61,4	89,1		NW.	o	n.	do	do	cumuli,
16	,065	,170	,895	76,0	6,2	5,0	94	,962	,016	,946	77,6	10,8	9,0	82	62,5	90,2		N	n.	n.	do	cumuli.	do
17	,067	,182	,885	75,7	5,0	4,6	97	,971	,020	,051	77,6	8,9	7,8	85	63,2	89,2		o.	nw	nw.	curri.	do	fine.
18	,058	,148	,910	76,1	6,1	5,6	92	,959	,984	,975	78,1	10,0	8,6	81	62,0	88,4		o.	nw	n.	clear.	clear.	do
19	,066	,166	,920	75,4	7,4	6,4	89	,971	,997	,974	78,3	9,2	7,8	83	61,5	86,7		o.	nw.	N	dew.	do	do
20	,078			73,6	7,8			,004			77,7	12,7			60,4	89,0		o.	o.	N.	fog.	do	curri.
21	,066	,182	,894	75,8	7,5	7,0	88	,960	,996	,962	77,3	10,9	10,7	76	60,0	88,2		o.	N.	N.	do	do	clear.
22	,070			70,9	11,6			,960			73,0	13,7			60,5	83,8		n	o.	n.	clear	do	fine.
23	,077	,248	,829	73,8	9,9	9,0	81	,963	,097	,886	75,1	11,1	10,3	75	54,2	83,8		o	N.	n.	do	do	clear.
24	,109	,288	,821	73,4	8,2	7,0	87	,016	,084	,932	76,5	11,2	10,0	80	54,2	89,2		o.	N.	nw.	do	do	do
25	,126	,247	,879	74,7	8,0	6,7	89	,038	,097	,941	76,7	10,5	10,0	79	57,2	90,3		n.	NW	n	do	do	do
26	,125	,268	,850	74,5	6,5	5,3	92	,009	,076	,933	76,4	9,8	9,0	80	58,7	87,8		o	n	n	do	do	do
27	,099	,223	,876	74,6	7,4	6,2	89	982	,040	,942	76,7	11,0	10,4	78	58,0	88,0		o.	n.	nw	do	do	do
28	,030	,170	,860	74,6	10,8	9,4	81	928	,038	,890	75,7	11,2	10,4	78	57,2	84,0		sw	n	nw.	do	do	do
29	,044			69,7	9,3			,9 2			74,2	13,4			56,6	85,5		n	n.	nw	do	do	do
30	,025	,198	,827	73,3	8,7	7,4	86	,949	,094	,845	74,3	9,3	9,0	81	54,8	88,8		nw	n	n.	do	do	do
Mean.	29,025	28,108	0,914	75,6	7,7	6,6	89	,925	,952	0,966	77,9	10,0	8,5	83	62,7	96,8	3,14	North.			One storm, then fine and cold.		

On the 14th instant the Register Thermometer was removed from the top of a house in Calcutta, to Chowringhee; where it was placed in a garden 2 feet from the ground, near a tank. On this account it did not range so high in the day A new correction— ,020 is also applied to the Barometer on Sundays, now placed on the second story.

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JOURNAL

OF

THE ASIATIC SOCIETY.

No. 48.—December, 1835.

I.—*Memoir on Chinese Tartary and Khoten.* By W. H. Wathen, *Esq., Persian Secretary to the Bombay Government.*

[*Extract of a letter to the Sec. As. Soc. read at the Meeting of the 2nd inst.*]

Having had opportunities of conversing with many natives of Chinese Tartary, several of whom were intelligent and well-informed men, I have drawn up a description of the country, from the information I obtained from them, and, as in the absence of any more correct accounts of a region which has not been visited since the time of Genghiz Kha'n and his successors, this may prove interesting, I transmit the memoir to you, to be laid before the Society.

I am well aware of the great caution with which oral information on such points should be received. The accounts I obtained were not elicited by any formal queries, or by giving the persons addressed any idea of the object in view, but in the course of daily interviews, and by friendly intercourse with them, and all my questions were casually introduced in the course of desultory conversation.

I have been on friendly terms with at least ten of these persons, who were on their way to perform pilgrimage at Mecca; and where I had any doubts regarding the authenticity of information received from one, I took advantage, on a different occasion, to address myself, on the same subject, to another, and thus an opportunity was afforded to rectify any thing which might have been incorrectly stated.

My sole object has been to add, in any degree, however trifling, to our knowledge of a country so near our own frontier, and of which, at present, so little is known; and I trust I shall be excused, at least, in my humble attempt to imitate those great men MM. Humboldt and Klaproth, who have been gaining information, in precisely the same manner, from natives of Chinese Tartary, who have resorted to Orenburg, or Orsk, on commercial pursuits, the result of which they have lately published at Paris.—W. H. W.

Chinese Tartary.—The province of Chinese Tartary contains, at present, nine towns of considerable magnitude, namely, *Yárkand, Kashgar, Auksú, Eela, Yengí Hissár, Ooch Túrfán,* and *Koneh Túrfán,* (which is sometimes called *Hami,*) *Gúmmá* and *Lopp.*

Yárkand—Of these, *Yárkand,* from the extent of its population, may be said to be the capital of the province, though, in a political point of view, each of the governors and Chinese residents of those towns exercises independent authority. *Yárkand* is described as being a flourishing and populous city. It has two forts: the principal one is of large extent, but its walls are of clay, and it is uninhabited, the other, which is rather smaller, has four gates, is inhabited, and is considered by the natives as very strong, being built of stone and chunam, and surrounded with a ditch The suburbs extend over a considerable space The population of *Yarkand* is said to consist of about 30,000 families, as found by a census made by the Chinese—each family consisting of from five to 10 persons. Only 200 Chinese merchants are fixed residents, but many other traders of the same nation resort to the city—departing after a temporary stay There are also many Túngání merchants resident in the place, and a number of Chinese artisans. Many natives of *Kashmír* have settled at *Yarkand,* a very few Hindus, and some Shíahs, or, as they are called, worshippers of Alí, but no Jews or Nogai Tartars The houses are generally one story high, and built of clay, which answers the purpose sufficiently well, as very little rain falls in these countries *Yárkand* boasts of numerous mosques and colleges. There are two spacious bazars—one within the fort, and the other in the suburbs, besides other smaller bazars in different quarters of the city Horse-flesh is sold in the butcher's shops, and generally eaten · it is not considered unlawful food by the people of the country, and generally sells for the same price as mutton. Kimmiz is not used by the inhabitants of the towns, but by the Kalmuks, and other roving tribes. The tenets of the Musalmán religion do not appear to be very strictly observed in Chinese Tartary, and the inhabitants seem to be much more tolerant than those of *Kokan,* and other places in Independent Tartary

The Chinese government has a force stationed at *Yárkand,* stated to consist of about 7000 soldiers, partly Chinese, and partly Mandshus, or Mongols, of whom a portion garrison the forts, the remainder are cantoned outside the town, much like the English troops in India The whole are under the orders of an officer, who has the title of Umbaun. There are no Túngání soldiers in Chinese Tartary, for, as they are Musalmans, the Chinese fear that they would,

being of the same religion, join the Usbeks in case of any insurrection taking place. The *Túngánís* live in the country, the chief towns of which are *Salar* and *Seiram*. ALEXANDER the GREAT is said to have penetrated as far as *Salar*, and to have left a colony of his soldiers in the country, from whom the *Túngánís* are descended. They derive the name from several Turkish and Persian words, in different ways, signifying, left behind, looking back, &c &c It is a general tradition, that ALEXANDER carried his conquests through this country, to the frontiers of China proper The Umbaun, who is the Chinese resident, is the chief political, as well as military, authority in each district. The present Governor of *Yárkand* is ABDUL REHMÁN BEG WAUG, who is the nominal Usbek ruler of the country, but is, to all intents, under the most complete control of the Umbaun, who has sole authority over the regular Chinese troops stationed in the district.

There are many small towns and villages dependent on *Yárkand*. The whole district round it is said to be most populous, and is thickly interspersed with villages and hamlets The country is described as very fertile also, and amongst its productions are enumerated wheat, barley, rice, gram, *jawárí*, *bajrí*, and various seeds from which oil is extracted. Melons, grapes, apples, and other fruits of temperate climes, are also abundant A large portion, however, of the wealth of the people of the country about *Yárkand* is said to consist of flocks of the shawl goat, called by them *Akhchahs*, of which almost every landed proprietor possesses a large number. The dúmba, or fat-tailed sheep, is also common. Plantations of mulberry trees are very numerous, and great quantities of silk are produced

Irrigation is said to be carried on to a great extent, the whole of the lands in the vicinity being plentifully watered by rivulets, and streams of water, flowing from the mountains

Kashgar.—The city of *Kashgar* is the ancient capital of the province, but since the rebellion of JEHÁNGÍR KHOJEH, when its inhabitants suffered much from both friends and foes, it has fallen greatly to decay. *Kashgar* is the frontier station, and five days' journey from *Yárkand*; with a káfila it is six days, but with quick travelling the distance may be traversed in four. The city itself contains about 16,000 inhabitants · many towns, villages, and castles are also dependant on it, the population of which is very considerable The Usbeck chief of *Kashgar* is named TAHI'RULDI'N BEG, who has not the title of WAUG, but his government is distinct from that of ABDUL REHMÁN BEG WAUG, the chief of *Yárkand* He is, however, inferior in rank to the WAUG. Eight thousand Chinese regular troops are constantly cantoned at *Kashgar*, as a check on the Khán of *Kokán*.

Yengí Hissar.—On the road, about half-way between *Yárkand* and *Kashgar*, lies the town of *Yengí Hissar*, which is famous for its dancing girls and musicians, who are Musalmans, and resemble those of India.

Auksú.—Auksú is north-east from *Yárkand*, and distant about 20 days' caravan travelling. This town is represented as a very flourishing place, and a great commercial mart for the products of China and Russian Tartary. It is the residence of a *hákim*, named AHMED, son of OOZAK, whose authority is distinct from that of the other chiefs. He is an *Usbek*, and lower in rank than the WAUG of *Yárkand*; and, in like manner, subordinate to the Chinese Umbaun. The number of Chinese troops in *Auksú* is 2000. The silver coin called *Tankeh*, the current money of the province, is struck at this place.

Eela, or *Gouldja*.—The town of *Eela*, which is also called *Gouldja*, is situated north of *Auksú*, distant 25 or 30 days' journey, but it may be reached in 20 by quick travelling. From *Yarkand* to *Eela*, the distance is greater, and ordinarily, a journey of 40 days. To this place, as also to *Yessik* and *Kouché*, the Emperor of China banishes criminals of magnitude, for three, five, seven years, or for life. Owing to the fertility of the surrounding country, fruit and grain are very cheap at *Eela*, and good horses, sheep, and dúmbas, may be had at very moderate prices. It is at this place, and the neighbouring country, that great numbers of the *Kalmuks*, or *Eleuth* hordes, have been located by the Chinese government. The climate is said generally to prove fatal to foreigners.

Kouché.—Kouché is situated north-west of *Auksú*, and south of *Eela*, at a distance of 40 days' journey from *Yárkand*, and about three months' journey from the Russian frontier. The population of *Kouché* consists chiefly of *Kalmuks*. The principal people of substance reside in the city, and the poorer classes in tents on the plains. These generally follow pastoral pursuits, and have numerous herds of cattle.

Ooch Túrfán and *Koneh Túrfán*.—There are two towns called *Túrfán*: one *Ooch Túrfan*, which is only two days' journey from *Yarkand* and *Auksú*, the other *Koneh Túrfán*, called also *Hami*, which is at a distance of two months journey from those places. *Koneh Turfán* is a very ancient city, and remarkable for the fine grapes which are there produced.

Lopp.—Lopp is situated at a great distance from *Yárkand*. The inhabitants are principally Chinese; but few Usbeks reside there. *Lopp* is remarkable for a salt-water lake in its vicinity.

Gúmmí—Between *Yarkand* and *Eelchí* (in *Khoten*) is the town of *Gúmmí*, the chief of which some time since was KURBÁN BEG, who was said to be in possession of the stone called "*Yedeh Tásh*," (rain-stone,) which, according to popular belief, possesses the extraordinary virtue of causing rain to fall, whenever it is placed in sweet water

Khoten—In the country of *Khoten* are the towns of *Karakash*, *Eelchí*, and *Kirrea*, besides many others of less magnitude *Eelchí* was anciently called *Khoten*, but at present there is no town bearing that name, which is now applied to the whole district, of which *Karakash* is the capital, distant about ten or twelve days' journey from *Yárkand* The district is governed by two Chinese Umbauns, or residents, to whom are subordinate two *Usbek hákims*,, one in *Eelchí*, and the other in *Kirrea* There is a Chinese regular force of 2000 men stationed in the district, and the number of subjects paying tribute is estimated at 700,000 The population is chiefly Usbek, but Kalmuks, or Eleuths, are also settled in large numbers in different parts of the country The Musalmans are more numerous than the Buddhist idolators The policy of the Chinese is said to be opposed to the adoption, by any of their nation, of the Muhammedan faith

Eelchí—Eelchí is 12 days' journey from *Yárkand*. In this town, and generally in *Khoten*, there are many Baudh priests and temples.

Kirrea—Kirrea is five days' journey on horseback from *Eelchí* At this town is a gold mine, the sand of the river which flows near it is also found to contain that precious metal Two or three hundred labourers are always employed in the mines, which are said to be very productive The produce of this mine is monopolized by the Chinese government.

Revenue and Trade—The revenues of *Khoten* are said to exceed those of *Yárkand* A considerable trade is carried on between these places by káfilas, which carry mushroo, satin paper, gold dust, silk, grapes, raisins, and other commodities, to *Yárkand*, whence they bring copper pots, leather, boots, &c to *Khoten*

Trade of Chinese Tartary—A very extensive commercial intercourse is also carried on between *Yarkand* and the large towns near it, as well as with Kashmir, Badakshán, China, and the Russian territories on the north-western borders of the Chinese empire.

From Kashmír the natives of that country bring to *Yárkand*, shawls, *kincábs*, *chikun*, white piece goods, and leather, and take back *ambú*, or pure silver, the wool of the shawl goat, called *tibbít*, and other articles.

The merchants of *Fyzábád*, which is the capital of *Badakshán*, bring to *Yárkand* slaves, and precious stones, taking back silver and tea. The káfila, which comes once a year, is generally about 40 days on the road, but by forced marches, the journey may be performed in twenty

From *Andejan*, in the Khánate of *Kokan*, piece goods and other commodities are brought viâ *Kashgar*, the return trade from whence consists of pure silver, China-ware, tea, in boxes and bricks. The brick tea is of a very inferior quality, and is used only by the poorer classes This trade is carried on by means of horses, mules, and camels.

Káfilas come from the Russian frontier, by way of *Eela*, *Auksú*, and *Kouahé*, bringing broad cloth, brocades, silver, gold ducats, copper, steel, furs, &c and they take back tea, rhubarb, sal-ammoniac, &c.

Communication with Pekin —From *Yárkand* it takes a caravan from four to six months to travel to *Pekin*, (which the natives call *Pechín*,) but by quick marches, the journey may be performed in three months. There is but one road to *Pekin*, which caravans, or travellers, can use, for though there is said to be another, and shorter, route, its use is prohibited by the Chinese government. In the way there is one very difficult pass, where 20 matchlock men may oppose a whole army A party of Usbeks is stationed there. At every stage is a Chinese Ortung, or post, of seven or eight Chinese, and about 20 Usbeks No passport is necessary for persons going from *Yárkand* to China, neither are they prevented from remaining there as long as they choose, the leave of the Emperor not being requisite for this purpose

An extensive trade is carried on between China and *Yarkand* Great quantities of silk, great numbers of cattle, &c are taken to China; articles of China manufacture, porcelain, and especially tea, form the returns

Road to Tibet —From *Yárkand* to *Ladák*, (or little *Tibet*,) which is nominally dependent on China, is a journey of 30 or 40 days. The country on the way is inhabited for two stages, where Chinese Ortungs are met with, five Chinese and 20 Usbeks in each, but for the next twenty days, the country passed through is a succession of plains and mountains, without inhabitants The people at the Ortung inspect the passes given by the Umbaun, and after stamping it with their seals, return it, but it is kept at the last post, and given back on the return of the party, which must account for absentees These Ortungs, however, it is said, may be easily avoided. By forced

marches, *Tibet* may be reached from *Yárkand* in 17 or 18 days. Thence to Kashmir, it takes a káfila 25 days, but the journey, by quick marches, may be performed in 15, there is plenty of wood, water, and forage, on the road.

To Auksú.—From *Yárkand* to *Auksú* is 20 days travelling by caravan and on the way are 17 Ortungs, at most of which there are seven Chinese and 13 Usbeks, but at some, there are more. The road passes through a very woody country

Rivers.—There is a river near *Yárkand*, the name of which is *Zurufshan*. It is generally frozen for three months in the winter; when horses, camels, and men may pass over it From the part of the country about *Auksú* two streams join the *Zurufshan* one of them flows five kos distant from *Auksú*, and the other is seven days' journey from that place

Climate.—In the summer, when the melons ripen, it is very hot in these countries, but during winter, it is extremely cold. In this season, a great deal of snow falls on the mountains, which are twenty days' journey from *Yarkand*, but in the city itself, very little falls. It rains very rarely, only twice or thrice in the year, for an hour or so, and then the weather becomes very cold.

Volcanoes—Sal-Ammoniac.—At the distance of 10 days' journey from *Auksú*, are two very high ranges of mountains, between which there is a valley, the surface of which, to a considerable depth, is covered with sal-ammoniac There is a dreadful heat at this place, occasioned by a volcano, which, by the people of the country, is called "God's fire." The heat prevents them approaching it in the summer. During the eruptions, the sal-ammoniac is said to be thrown out, and showered over the valley, like mist, to the distance of one kos, it afterwards hardens, and becomes, during the winter, crystallized like ice. People go there in that season, cut it into convenient pieces, and carry it away. It is said, that near old, or *Koneh, Túrfán*, also, is a mountain, out of which flames of fire are seen to issue.

Earthquakes—Cholera.—The natives state, that about three years ago, there were constant earthquakes in the province, and that the cholera committed great ravages at *Yárkand* In *Badakshán*, the earthquakes destroyed a great number of houses and people.

History of the Province.—About eighty years ago, the whole of the country was in the hands of the Kalmuks, or Eleuths, and there was one Túrah, or chief, in each district, as governor. The Kalmuks were subsequently conquered by the Chinese in the reign of Kien Lung, and the authority of the Emperor was established over the whole province. For a long period after that event, the Chinese

held it in possession, without any attempt being made, either by the Kalmuks to regain their lost authority, or by the natives, to assert their independence. Subsequently, however, the Chinese began to oppress the people to such a degree, as to excite much discontent, and a general feeling of dislike towards them. Taking advantage of this state of things, Ai Khojeh, a descendent of the ancient princes of the country, and a Syed of noble family, to whom the Kalmuks, as well as the whole of the Muhammedan population, were much attached, headed a rebellion against the Chinese, and opposed them with various success for some time; but was, at length, forced to retire before their superior number. The Chinese are said to have made a cruel use of the advantage they had gained, and massacred the Muhammedans in every quarter where the least resistance was apprehended.

Ai Khojeh, and his followers, finding it impossible to continue the contest, fled to *Badakshan*; but the prince of that country betrayed him, and gave him up to the Chinese, who put him to death. In retribution for this treachery, his country, the people of *Yárkand* believe, has been revisited with the miseries that have since befallen it, and fell an easy prey to Muhammed Murád Beg, of *Kundúz*, who some years ago invaded and conquered it. When Ai Khojeh was thus delivered into the hands of the Chinese, his son, and his grandson, Jehángir Khojeh, fled to *Andeján*. Some years afterwards, Ai Khojeh's son died, leaving his son Jehángír Khojeh, then a youth, under the care of the Khán of *Kokan*. About 10 or 11 years ago, observing how unpopular the Chinese had become, he formed a plan for regaining the possessions of his forefathers. Having succeeded in bringing over to his cause Eesá Bahádur, one of the influential men of *Andejan*, who joined him with a large body of the Kuirgiz, and being supported also in his attempt by the Khán of *Kokan*, who sent a force of about 8000 horse to assist him; he advanced into Chinese Tartary, and attacked the Chinese in their cantonment at *Kashgar*. The Chinese, and Yunis Waug, who was then the Usbek hákim of *Kashgar*, took refuge in the fort; but the Chinese apprehending that this chief and the Muhammedans would join Jehangir, put Yunis Waug, and many of the inhabitants, to death. This inhuman proceeding, however, failed of its object; for it did not deter the rest of the inhabitants, who were Musalmans, from going over to Jehángír; who, thus strengthened, attacked the fort, and carried it by storm; the Chinese, who were taken by surprise, being either driven out, or cut to pieces.

JEHÁNGÍR KHOJEH then marched to *Yárkand*, where also he was well received by the inhabitants. The Chinese, after sustaining several defeats, abandoned the country Encouraged by his success, the KHOJEH then proceeded to *Khoten*, and expelled the Chinese from that province Whenever he made his appearance, the Chinese either gave way, or, resisting, were put to the sword Thus JEHÁNGÍR acquired possession of the whole country, which remained in his hands for five or six months, but, abusing his power, he tyrannised over the people, and oppressed them. He became, in consequence, disliked, and was not supported by the inhabitants in opposing the Chinese, who returned with an army estimated at about 60,000 men, besides many Kalmuk horse Being unable to check their progress, the KHOJEH retired to the mountains, and his *Khirgiz* and *Andeján* allies retired to their own countries, carrying away with them property of immense value, of which, on the approach of the Chinese, they had plundered the inhabitants Shortly afterwards, ISHÁK KHOJEH, of *Kashgar*, being jealous of JEHÁNGIR, betrayed him into the hands of the Chinese general at *Auksu*, by whom he was sent to *Pechín*, (*Pekin*,) where he was put to death by order of the Emperor For the service which ISHÁK KHOJEH had rendered, he received from the Chinese, the office and title of WAUG, or prince of *Kashger*. The real cause of the defeat of JEHÁNGÍR KHOJEH was, that the Usbeks of Chinese Tartary were divided into two tribes, the *Ak Tak*, to which he belonged, who are of the *Naqsh-bandí* sect, and the *Kura Tak*, who are *Kadarís*, and who never cordially joined the other ISHÁK KHOJEH was the chief of the latter Sometime subsequent to his being appointed governor of *Kashgar*, he was called to *Pekin*, but never heard of after It is supposed the Chinese were afraid of his influence, and that he was got rid of by poison

Revenue—Albaum, or Land Tax—and Customs.—The revenue derived by the Chinese, or rather the payment made to them by their subjects in Chinese Tartary, is denominated "Albaum," which consists of a capitation tax of one rupee from each man, per month, and a tenth of the produce of the land

Syeds, múllahs, pírzádehs, faquírs, soldiers, &c are excused from paying the "Albaum," according to the laws of GENGHIS KHÁN Formerly, land customs were levied on merchandize in transitu through the province, and were collected at the rate of 2½ per cent. on the value, (or as the narrator described it, "1 in 40, that is, of 40 pieces of cloth, one was taken,") but, about twelve years ago, this duty was entirely abolished, by order of the Emperor of China, and merchandize now passes free of impost.

Population and Language.—The native population of the country is Usbek, divided, as before stated, into two distinct classes, the Ak Tak, and Kura Tak The language generally spoken is the Jaghatai Turkí, which the Kalmuks also understand. This is probably the purest dialect of the Turki language, there being less admixture of Arabic and Persian, than in any of the others A collection of a few common words will be found annexed to this memoir, which will show its great affinity to the other branches of that widely diffused tongue

Chinese Troops.—The military force stationed by the Chinese in their provinces, is said to amount to between twenty and thirty thousand men.

Nature of the Government.—The Chinese government is represented to be very unpopular, at the present time, throughout these countries There seems to be nothing in its system calculated to conciliate, or productive of advantages tending to reconcile the people to subjection to foreigners The feeling of dislike, with which the Chinese are regarded, has been latterly much increased, in consequence of their carrying on vast works of fortification, and building walled towns, by the forced labour of the natives. The Musalman princes, chiefs, &c are said to occupy, by the natives who had passed through India, nearly the same political position under the Chinese residents, or Umbauns, and stand in the same relation to them, as they supposed the Nawábs, Rájas, &c. of this country do to the residents of the English government, the Chinese interfering little in the direct management of the people, and leaving to the native princes the administration of the government and laws The revenue, however, is realized entirely by the Chinese, the princes, &c. having large landed assignments.

English in India.—It is known at *Yárkand*, that India is governed by a nation of Europe (Feringís), and, it is said, that the Chinese entertain a high notion of the power of the English, which they view with feelings of apprehension, connected with an idea, that is prevalent in the country, of its being destined to fall into their hands.

Chinese Tartary accessible to European travellers.—It is said, that provided a person would dress as a native, allow his beard to grow, and accompany pilgrims on their return from Mecca, there would not be much difficulty in penetrating into Chinese Tartary; but that the easiest way would be by way of *Kokan* and *Kashgar*, as large káfilás of merchants pass that way. The person must, however, be able to speak Turkí, as very few of the natives of the country understand Persian, whereas, in the *Kokan* country, in Independent Tartary,

the population of whole towns speak nothing else. It would not be difficult for the individual to go even to *Pekin*, in China. All that is requisite is to get a pass from the governor, by paying a few tenkehs to the Chinese officers, giving out that his object is trade. My informants stated, that some years ago, a European made his appearance at *Yárkand*, in a native dress He was discovered accidentally, and brought before the governor, who threatened him with torture if he did not confess who he was, but assured him that he would be well treated, if he spoke the truth. He admitted that he was a European, and was sent out of the country.

The foregoing particulars were elicited from various natives of the country, and at different periods, as they happened to arrive at Bombay, in their way on a pilgrimage to Mecca One of these individuals was a prince of the country, another a *pírzádeh*, both persons of considerable education and information. the first was a native of *Auksú*, the second had travelled to *Badakshán*, *Kurratigin*, *Derváz*, and *Kokán* Another was an inhabitant of *Eelchí*, in *Khoten*

At the time this information was collected, I had not seen the works of Lieut. Burnes, or Timkowsky, nor the papers by the Baron Humboldt, and Monsieur Klaproth, in the Journal Asiatique

It is remarkable, however, and perhaps, may add to the value of this information, that the accounts given me generally corroborate those of the above-named distinguished characters, with the exception of what Lieut Burnes' informants told him respecting the troops in Chinese Tartary being Túngánis, which mine say is not the case, and the reason given by them seems to prove the truth of their assertion.

Collection of Words of the Turkí dialect, spoken at Yarkand.

Water	*Su*	Well	*Kuduk* and *Kulduk*	Light	*Taghatteh*
Fire	*Ot*			Far	*Zirák*
Smoke	*Chakàn*	Salt	*Tus*	Near	*Yakin*
Steam	*Ohàk*	Ghí	*Sirliya*	High	*Agis*
Man	*Ar Kisheh*	Milk	*Sut*	Mountain	*Tagh*
Woman	*Mazlam Kisheh*	Dog	*It*	Valley, or Pass,	*Dawàn*
Girl	*Kiz (billa)*	Cat	*Mushshak*		
Boy	*Oghal (billa)*	Horse	*A't*	Head	*Bàsh*
Red	*Kizzil*	Sheep, Dúmba,	*Koyi*	Mouth	*Yaghis*
Black	*Kara*			Nose	*Baxùn*
Green	*Yashil*	Cow	*Galleh*	Hair	*Tuk*
Yellow	*Sarak*	Ox	*Oyi*	Foot	*Put*
White	*A'k*	Bull	*Bokakeh*	Ear	*Kullàk*
Good	*Abdàn*	Camel	*Togheh*	The goat producing the Kashmír wool	*Akhchèk*
Bad	*Yamàn*	Ass	*Ashakr*		
Old	*Aski*	Mule	*Khacha*		
New	*Yengi*	Dark	*Kàràngo*		

Arm	*Kul*	Ice	*Muz*	Five	*Bash.*
Sun	*Kiùn*	Snow	*Kàr*	Six	*Alteh.*
Moon	*Ai*	Rain	*Yamghùr*	Seven	*Yetteh.*
Night	*Kicheh*	Deer	*Kìk*	Eight	*Sakis.*
Star	*Yeldùz*	Road	*Yòl*	Nine	*Tokus.*
Year	*Yel*	A Sheep	*Koì*	Ten	*On*
Stone	*Tùsh*	The wool used for making Kashmír Shawls	*Tibbit*	Twenty	*Yegirmi.*
Silver	*Gumish*			Thirty	*Otus*
Gold	*Altùr*			Forty	*Kerk*
Iron	*Tumir*			Fifty	*Alek.*
Wool	*Yung*			Sixty	*Altmish.*
Fool	*Tukhph*	One	*Bir*	Seventy	*Yetmish.*
Sister	*Saulin*	Two	*Iki*	Eighty	*Saksen.*
Brother	*Yanìm*	Three	*Uch*	Ninety	*Toksan*
Wind	*Shamàl*	Four	*Tut*	Hundred	*Yuz*
				Thousand	*Ming*

VERBS

To give	*Birmàk*	To sell	*Satmàk*
To take	*Almàk*	To eat	*Kich kanch almak.*
To speak	*Dimàk*	To buy	*Satab almak.*
To strike	*Urmàk*	To drink	*Ichmak*
To carry	*Makmàk*		

II.—*Some Account of the Hill Tribes of the Piney Hills in the Madura District. Extracted from the MS Journal of the late Major* WARD, *Madras European Regiment, communicated by Capt* T. J. TAYLOR.

The primitive inhabitants residing in the Varshagherry and Kumnundaven mountains, are the Kunnuver Villálers, in number amounting to about 4000 of both sexes, who resorted to them, it is supposed, about four centuries ago. They may be classed with the Villálers of the plain, yet differ in their habits and manners, scarcely having any intercourse with each other, or forming any connection by marriage. This latter circumstance may, however, in some degree be attributed to the difference of climate, the extreme cold of which the inhabitants of the low lands are unable to endure. It is still more singular that even among themselves they have peculiar habits and customs, which distinguish those in the east from their western neighbours: the latter consider themselves as something superior, and have no communication with each other. In their marriages, the Kunnuvers of the east invariably use a teak-wood stool when performing the ceremony by way of distinction: those of the west are not so particular, the bride and bridegroom are seated on stools, the floor of the house being previously garnished with cow-dung, and fantastically ornamented with streaks of flour. When the operation of sprinkling saffron-water is over, the husband performs the most important part of tying the tally, a small golden ornament, around the neck of the bride; the whole concludes with an entertainment to the relatives and friends of

both parties. The *Puryum*, or marriage gift, to the relations of the bride, is a pair of oxen, to the west only one bullock, and sometimes a cloth, as a present to the mother of the bride Incontinency is however very predominant, and separation between man and wife, not unfrequent, subject often to caprice. If a man feels an inclination to alienate himself from his wife, he has only to make his intention known to her parents, who receive her back with an offer of a pair of oxen To the west she is turned over, simply with a *Vatti*, or metal dish, in use, to eat victuals out of. In case a woman is displeased with her husband, and absolutely wishes to part from him, she is at liberty, only she must leave all her golden trinkets, if she has any, to her husband, those of silver she takes, being considered as her own property To the west, however, the wife is only permitted to take back such articles as she may have possessed before marriage, and if she has any children, they are left behind as the sole property of her husband. Should such separation take place, when the woman is in a state of pregnancy, (and in the interim, be married to another man,) the child then born must revert to the legitimate father The care and expense of weaning it, to the east, is recompensed by a donation of 30 fanams, towards the west, it is delivered to the father, on his demand, and no recompense made. the children of such a connection are allowed to grow up, and then as if by instinct return to their real father, who is bound to receive and protect them A woman may marry as often as she chooses, but can have only one lawful husband at a time, though she may bestow her favors on another, provided he be of the same caste any sexual connection with a man of another tribe would tend ultimately to expel her from the caste A man may marry, if his circumstances will admit, as many wives as he pleases, for concubinage is not permitted and to a man of some opulence, two or three women are necessary in his domestic affairs, they are also very useful in the fields, as the toilsome labour of weeding and watering devolves chiefly on them. Among the western Kunnuvers, a circumstance rather singular is supposed to prevail, in case of an estate devolving on a female, which is likely to occur from the default of male issue, she is prohibited marriage, but undergoes the ceremony of being betrothed to some part of the dwelling, she is however allowed to have an intercourse with the opposite sex, and to the offspring of such a connection, if a male, the estate devolves The women of the eastern parts are very uncouth, and wear brass and metal necklaces, with a profusion of bangles on their arms and legs, and bore the membrane between the nostrils, the latter is also peculiar to the women of the west, who are

rather superior, and more modest in the wear of ornaments: a few stone or glass beads around the neck, called Kulpashy, and rings, are their only decoration, they wear a white cloth, not very clean, from above the shoulders, knotted in front, and made fast round the waist with a bandage, those to the east wear theirs similar to the females of the low country The men are very simple in their finery, having a couple of cloths, one worn round the head, and the other about the waist, they seldom or ever wear sandals, and by way of ornament, display a few golden trinkets, pendent from their ear Their dialect is the Támul, which they speak fluently, but are otherwise illiterate. The Kunnuvers burn their dead, with the exception of barren women, and those who may die of the small-pox, who are buried

The Karakat Vellalers —This class of people are the primitive inhabitants of Anjinad, or five counties, or portions into which this division appears to have been divided on their first settlement in these regions. they are considered a people of superior caste, their custom and manners being indicative of it, though not in any manner esteemed above those of the same caste in the low country. A bráhman usually performs the duties at their temple, and the other ceremonies, &c &c, as marriages, &c. are performed by a *Pandarun* or priest of their own caste They speak the low Támul, but are most of them illiterate A Támul school of late has been established at Muraúg They are a very abstemious race Rice constitutes their principal food, as also tyre, milk, and butter. They have no aversion to fowl or animal food, and use ghí as a substitute for oil, with it they also anoint themselves previous to bathing They are not addicted to spirituous or fermented liquors. Opium is in use among them in moderation, and they chew and smoke tobacco The apparel worn by both sexes does not differ in the least from the inhabitants of the plains, and consists chiefly of coarse white cloths, the women, besides the small ornaments worn in the nose and ears, decorate their arms with silver bangles, and such whose circumstances will not admit of their being of silver have them made of brass A few of the men have the exterior membranes of the nose bored, and all invariably decorate their ears with rings. sandals for their feet are prohibited them They are known to associate with the Kunnuvers, to the east. though their customs and manners greatly differ. Both castes make no scruple about eating what is cooked by either But a Kunnuver, when invited to an entertainment by a Karakat, is not admitted to that part of the house, where the meats are dressed, nor is he allowed to touch any of the cooking implements. This class, by the laws of their sect, are contracted in márriage, when very young, it however happens, when the parties

are at an advanced age, (owing, it is said, to a deficiency in the number of females,) that some of the men are obliged to lead a life of celibacy A plurality of wives is not uncommon. It is only admitted, however, in case the first proves barren, but a connection of such a nature cannot take place without the consent of the first wife, which must be obtained eventually. A widow is by no means restricted, she being at liberty to marry another man, if she feels inclined to do so It is not uncommon for them to prefer remaining in widowhood Chastity among the fair sex does not appear to be a leading virtue among them, they are supposed, unknown to their husbands, to bestow favors on their male relatives, as well as on their neighbours But in the event it is ascertained, that a female has had sexual connection with an individual of a lower caste, she is immediately expelled, and banished beyond their limits, when she becomes the property of some Kunnuver, who is always happy to afford her an asylum in case an individual of this class debases himself by cohabiting with a woman of another caste, he also undergoes the sentence of banishment from his native soil In the primitive times this crime was punished with death. The marriage ceremony is performed at the house of the bride · a Pandál being raised before the door, under it the parties about to be consummated undergo oblation they then retire into the house, and are seated on the floor, previously garnished, with their faces towards the east, a lamp is kept burning on a stool, also a measure full of paddy, and a symbol of Vignashner, made of cow's dung, on the head of which are stuck two blades of the Acruvumpulla grass, to which the bride and bridegroom prostrate themselves, on rising, the relatives present the Tully, a small golden trinket, to the bridegroom, who ties it round the neck of the bride A bason of milk being introduced, in which are steeped some areca leaves, ficus religiosa, with some of which the elder relations sprinkle the heads of the bride and bridegroom, they then get up and prostrate themselves before their joint relations, and the marriage concludes with an entertainment On distributing betel and areca to the company the bridegroom, accompanied by his bride, retires to his own house, where the day after he entertains his friends and relatives. The *Puryum* or marriage gift is 30 fanams, and a cloth given by the bridegroom to the bride's relations The money is converted into jewels to adorn her person Estates invariably devolve to the eldest son In case there be two or more, the property is equally distributed among them. They purchase the polians as slaves, price of a male 30 fanams; that of a female, 50 She is considered of more value on account of the children she may bear, who when born are the property of the master.

III.—*Notice of Ancient Hindú Coins, continued from page* 640. *By* James Prinsep, *Secy. &c*

Plate L —Hindú coins of middle age.

To whatever period it may be finally determined to adjudge the series of *Gupta* coins described in my last paper, there can be no hesitation in regard to the first group of the present plate; though here again, had it not been for inscriptions relating to the same period, the absence of credible history would have left us as much in the dark as ever.

These coins are found, like the former, in greatest abundance in the vicinity of *Kanouj* Ten of them were picked out of a remittance from the Cawnpur collectory The Asiatic Society possesses some found at Allahabad by Dr A Tytler, I have several from *Azimgarh*, and other places, besides four of gold in Kerámat Ali's collection from the Panjáb, Col Smith, Dr. Swinny, Lieut. Cunningham, also possess specimens, and I have examined those in Col Willoughby's cabinet, but the most plentiful supply, of gold, silver, and copper exists in Col Stacy's cabinet, whence I have selected most of the specimens now engraved

It is rather singular that no mention of a species of coin comparatively so common, is to be found in Marsden's Numismata Orientalia. The only published drawings of them are, I believe, those accompanying Mr Wilson's notice, in the seventeenth vol Asiatic Researches, which were taken from coins in his and my own cabinets This gentleman was the first to attribute them to their rightful place in history, although he had but one well ascertained name (*Govindu Chandra*) to guide his judgment Upon a careful examination of the several collections mentioned above, I have now succeeded in adding five new names to his list, so rapid is the progress and success of the efforts now directed to this line of research.

The figure on the obverse of all these coins is of precisely the same character,—a rudely executed front view of a male or female (it is difficult to say which), seated in the native fashion, with a glory round the head, and some unintelligible objects in her hands. Prof. Wilson names her Laxmí, on the ground that the princes of the Rahtore dynasty were of the *Vaishavi* sect. In this case, we may recognize in her the female holding the cornucopia of the former Canouj group, sadly altered for the worse in point of execution.

The inscriptions on the reverse are, with one exception, easily legible, they are in a much more modern form of Devanágarí than the last, differing little from the present style, except as to the vowel inflection *e*, which falls behind the consonant to which it is attached, as in

Hindu Coins - 2nd Canouj Series

the *Gaur* or *Bengáli* alphabet The same remark applies to the letter *j* (fig 8), which assimilates to the Bengáli and Tibetan forms, and serves admirably to shew the transition of this letter from its original shape in the most ancient alphabet where it closely resembles the Roman E, to its present modified form ज.

The figures in my plate are not placed with any regard to chronological order, but rather according to their comparative frequency of occurrence figs 1 and 2, being by far the most numerous of the set.

On figure 1, we make out the words श्री मद्ज्ज्ञेयदेव ॥ *Srí mad Jádjèya dèva* This variety is comparatively common in *gold* Lieut CUNNINGHAM has one of silver

On figure 2, the most common of the class, are the very distinct words श्री मद्गोविन्दचन्द्रदेव , *below* the letters वि and च are dots, which supply the place of the *n* or *anusvara*, so that the full reading should doubtless be श्री मद् गोविन्द चन्द्रदेव, *Srí mad Govinda Chandra dèva;* the gold of some specimens of this variety is of inferior quality

Figure 3 is the one I have noted as being difficult so decypher I have as yet only found one of the sort, it is of Col STACY's cabinet. The letters visible are श्री मद्रा मद्दवेचे णम, *Srí mad Rama havè che nam.* The व may possibly be an र, making the reading *Ráma Hari*, but we must wait the discovery of duplicates before we can complete or rectify this uncertain name

Fig 4, (KERAMAT ALI') is more easily legible, श्री मत्कुमरपाल देव *Srí mat Kumara Pala dèva.*

Fig 6, from the same collection, is a small coin of the same prince.

Fig 5, is equally distinct, श्री मन्महीपाल देव *Srí man Mahí Pála dèva.* It is from a single coin in Col STACY's collection.

Figs 7 and 8, (STACY,) one of copper, the other of silver, help to decypher one another The complete legend is श्री अजय देव *Srí Ajaya dèva.*

Lieut CUNNINGHAM has sent me an impression of a copper coin of the same class, on which the name appears to be श्री मद्लक्ष्मी देव probably *Srí mad Laxmi (Pála or Chandra ?) dèva*

It was, as I have said above, the occurrence of the name of GOVINDA CHANDRA DE'VA, which led Mr. WILSON to ascribe this group to the *Ráhtore* princes of *Canouj*, who held the sceptre of that ancient city for a century prior to the overthrow of their last and best known Rája, JYCHAND (*Jaya Chandra*), by SHAHÁB-UD-DIN. One of our coins undoubtedly belongs to the former prince, and it may perhaps be allowable to give the last two, figs. 7 and 8, to JYCHAND himself, whose proper name may have been *Ajaya Chandra dèva;* the family

name *Chandra* being frequently omitted both in writings and in inscriptions. But the remaining coins of our series, two of them having the family name *Pála*, cannot be reconciled with any of the princes in the short *Ráhtore* line, of which every individual from the first conqueror Chandra de'va, in A D. 1072, is known to us through the concurrent testimony of several inscriptions What was the antecedent dynasty? has been a question hitherto imperfectly answered, the traditions cited by Colonel Tod being, as stated in my last paper, at total variance with inscriptions. The latter indeed only record two names, Yasovigraha (or *Srípála?*) and Mahichandra prior to the conquest of Chandra de'va. The latter of these should probably have been Mahipála, of whose reign in the early part of the eleventh century, the inscriptions at *Sárnáth*, *Dinájpur*, and *A'mgáchí* supply ample evidence, now indeed confirmed by the superscription of his coin in fig 5 Yasovigraha, in like manner, may be referred to the Vigraha-pála de'va of the *Dinájpur* inscription, and thus the sur-name of *Pála* may be restored to both these princes

Although *Gaur* in Bengal was the original seat of the *Pala* family, there is no reason to doubt that they had acquired the paramount sovereignty of India, and that the seat of their government was fixed for a time at least in Canouj Indeed, branches of the same family may be traced to the westward—to the *Pálas* of Málwa, one of whom (Anangapála) rebuilt Delhi, or re established it as his capital, and perhaps even to Guzerát, where we find the occurrence of a Kumára pála, in 1100, who may probably be the owner of our coin, fig 4, especially as his son is named Ajaya Pála, who may be the Ajaya de'va of figs 7, 8. In evidence of the identity of this family, it may be sufficient to note a few facts, referring to the elaborate observations of Wilford, and the subsequent notices of Colebrooke, and those of Fell, and Wilson, in the 15th volume of the Asiatic Researches

The list of the kings of *Gualior*, noticed by Wilford, consists of 85 names, all having the affix of *Pala*, "*in accordance with the prediction of Guapála the hermit, their progenitor**." Now the founder of the *Gaur* family of Bengal is equally a *Gopála*, though some authorities call him *Bhupala*, a name of much the same import, and denoting his rustic extraction

Again, the grandson of Anangapála, the *Tuár* conqueror of Delhi, is stated to have returned to *Gaur*, "*his native country*," after the defeat and death of Prithivi Pála, or Pithaura. Thus Anangapála too was of the Bengal family. moreover he was either the grandson or the fifth in descent from *Chandra Pála*†, or *Chaitrá Pala*‡, of *Málwá*,

* As Res ix. 154. † Ayín Akberí. ‡ Wilford.

"who swayed all India," after JAYANANDA. and the Musalmán writers affirm that "after *Gebál* (or *Chait Pála*), the *Balhára* kings of *Guzerát* became paramount emperors of India*" It is not, however, absolutely necessary to travel so far to the west for a *Kumára Pála*, since in ABUL FAZL's list we find a prince of this name immediately following ANANGAPÁLA in *Málwa*, and FERISHTA also makes a KUNWER RAY (rája *Kumára pála*) reigning at *Canouj* on the invasion of MAHMUD There is evidently some connection between all these different dynasties, and although the subject is now involved in almost inextricable confusion, from the discrepancy of the several lists in the *Ayín Akberí*, in RAGHUNÁTH's *Rájavalí*, and in the *Agní Purána*, we may hope, through the fortunate discovery of the present coins, and others that we may now confidently hope will succeed them, to arrange the names in a satisfactory and coherent manner It is evident that the *Canouj* mint produced this series continuously, as the alphabetic type is preserved through the whole unaltered. It will be seen presently that the same distinctive characters appear at a particular point, both in the coinage of *Guzerát*, and in that of *Chitor* or *Mewár*; and in both cases sufficient of the name remains visible to shew that it terminates in *Pála dèva*, and therefore, that it marks the spread and paramount sovereignty of the *Gaur* family across the whole continent of India

Figs 13, 14, 15, 16, are silver coins found in abundance in many parts of India, but chiefly towards the desert to the west of Delhi Colonel STACY's cabinet is rich in them. Mr. WILSON's plates exhibit others from Colonel MACKENZIE's and my own collection. They weigh on an average 50 grains, or three *massas*.

On the obverse is a figure of the boar, or the *Varaha avatár* of VISHNU, and the *chakra* or discus of this god is visible on many of the specimens The character on the reverse is again of quite a new form. Instead of the square-built *Gaur* alphabet, or the *Gujerátí* letters, we have here the nail-headed letter common to the inscriptions of the *Takshac*, *Jit*, and *Mori* princes, of *Haravatí* and *Malvá*, described in TOD's Rájasthán, App. vol. I. which belong chiefly to the 7th, 8th and 9th centuries This vague coincidence may help in assigning the place and period of their coinage, which otherwise there are no data to trace. The full legend of the coins, made out from collation of the engraved figures and from many others in Colonel STACY's cabinet, is श्री मदादिवराह: *Srí mad ádi Váraha*, which is nothing more than the title of the incarnation, and affords no clue to its appropriation Below the

* WILFORD, As. Res. IX 164

legend is in general visible a square or oblong central ornament, with two balusters on the sides. their intent is beyond my apprehension

Fig 17, differs from the preceding in the reverse, although its general similarity and its being found in company shew it to belong to the same family. The two baluster-looking ornaments again meet the eye—on the reverse is the initial word श्री *Srí*, and below it यो or पो, *yo* or *po*

The flourish on the left hand is evidently intended for a human face viewed in profile.

In 18, the word *Srí* is again very distinct, but the head of the *boar-god* is also apparent. In the Society's plate, I was the cause of Mr WILSON's mistaking the word श्री for the letter ड reversed, from my having engraved the figure upside down

In 19, and 20, the human profile is better defined than in 17 The contour of the ear, cheek and shoulder may be distinguished, the eye, nose, and lips, are represented by dots. In 20, the word *Srí* is still discernible

On the reverse is a single letter, either *k*, *s*, or *m*, amidst flourishes

In 21, the boar again appears, with the letters वह *vaha* or perhaps एक *ek*. Of this sort, a quantity were dug up while I was at Benáres, by Mr. TAYLOR, judge of *Mirzapur*, near *Sultánpur* Mr GUBBINS found several at *Gurgáon* to the south-west of Delhí

It seems impossible that coins so plentifully found in Upper India should have been struck in the peninsula, or we might from the device and superscription attribute them to the *Vijyanagar* sovereignty; for Colonel WILKS informs us, that "*Varaha*, the boar, one of the incarnations of VISHNU, was the emblem which these rájas adopted, as the impression on their *gold* coins, and the coin was and is named *Varáha* in consequence, in the Hindu languages of the south" The restriction however of this name to the small gold coins or *huns* of the south is against this hypothesis. One of the Vijvanagar *Varáhas* (of DEVA RAYA ?) is depicted as fig 80 of Mr. WILSON's plates, and though the attitude of the *avatár* is a rude imitation of ours, the form of the Nágarí character is there essentially different, and much more modern.

Similarity of name might tempt us to assign them to the *Varáhas*, a powerful Indo-Scythic tribe to the west of Jesalmèr, who were frequently in collision with the Bhattis in the eighth century, or the foundation of Tunnote*. But it does not appear from Col POTTINGER's description of them, under the name of *Brahooes*, that these were ever

* TOD's Rájasthán, ii 229

of the Hindu faith, whereas the emblem and inscription could have proceeded only from an authority strictly *Vaishnavi*

Fig 22, from the STACY collection, would appear to be an interloper in the Upper Provinces, since the majority of this type have hitherto been found in Ceylon, some in the palace at *Candy*, others by Colonel McKENZIE at *Dipaldinna* They all however belong to the genuine Hindu rájas of that island, judging from the alphabet and the name

The rude outline on the obverse, is intended, probably, for a rája holding some mace or warlike weapon in his right hand On the reverse he is seated in a lounging position, with a view to make room for the inscription on the side This in the specimen before us is श्री मया चय मल्ल *Sri mayá traya malla* The second word is read by MARSDEN, in a specimen very like it, दय *daya* And on another coin he finds the name of VIJAYA विजय (मल्ल?) well known in the history of Ceylon Mr. WILSON does not attempt to read the names on his coins, which are badly drawn, but on comparing them, they appear not essentially to differ from Colonel STACY's No family of the name of *Malla* occurs in the Indian genealogies except in Nipál, where, from the 13th century to the Gorkhá conquest, the reigning prince almost always bore the affix of *Malla* In the honorable Mr TURNOUR's catalogue of the Ceylon monarchs, I do not find any such name

Figs 24 and 25, are two more modern copper pieces, selected from many of a similar nature in Colonel STACY's cabinet, as forming a good land-mark in judging of the antiquity of other Hindu coins The rude attempts at a human figure in 24, are far inferior to any thing we have yet seen, unless in its companion 25, where we can hardly pronounce them to be other than signs and symbols The name and date on most of these coins are distinct enough, and in the present type of *Nagari*, श्री संग्राम सिंह १५८०, *Sri Sangrama Sinha*, 1580 *(samvat)*. Sometimes the name is written सग्रम, and at others संगम, *Sangrama* and *Sangama*, variations to be expected in such imperfect samples of the engraver's art

Fig 27, is of the latter description, having the name *Sangama* preceded by the letters भकग The reverse of this coin has the figure of a heart, which is very common on copper money dug up in the Ságur district, of the Muhammedan princes of the Berar provinces. Arabic letters are clearly distinguishable above the heart

From the date of these coins, we recognize them as belonging to the celebrated SANGRÁMA SINH, or SINKA of the Moghul historians, who for a short period successfully resisted the victorious BABER at Biána.

A romantic account of the chivalrous adventures of his youth is given by Colonel TOD*. He succeeded to the throne of *Mewár*, in S. 1565, (A D. 1508,) and is accounted by the Rájpút bards the "*kalsa*," or pinnacle of its glory. His encounter with BABER at Kanúa occurred on the 5th Kartik, S 1584, (=15th October, 1527,) four years subsequent to the striking of these coins, which, by the way, are no very convincing evidence of the flourishing state of the arts in *Chitór* at the summit of its splendour and glory.

Fig 26, is a small square copper coin in Colonel STACY's cabinet, also of modern fabrication, on one side inclosed in a marginal frame, which proves that the whole inscription is before us, are the Nágarí letters एक लिस *èk lis* It may be that *lis* is the name of a coin of which the specimen represents the unit, or possibly it should be read एकालिस *ekális*, the fortieth or rather forty-first of the current silver coin of the place? The division of the field on the reverse into upper and lower compartments, so far resembles a gold coin from Canouj, described by Mr WILSON, as fig 52, Plate III The letters are कभ कंखी an unintelligible compound

Fig 28, is another rude Hindu paisa of a late period A human figure on the obverse, holds a staff in his right hand, on the reverse are the letters ब स ण स र जी *basan sar ji*, an unknown and doubtful name.

Plates XXXVI, XXXVII. Rájput Coins.

In the two following plates, I am again indebted to Colonel STACY's numismatic zeal for the greater part of a very curious series of Hindu coins, on the one hand linked by the subject of their impression with the Indo-Scythic series, and on the other gradually mixed with and transfused into the Arabic currency of the first Mohammedan conquerors of Central India.

Now that I am myself in possession of nearly 100 of these coins in silver, it appears strange that they should hitherto have escaped so completely the notice of our Indian numismatalogists, neither MARSDEN, WILSON, nor TOD, having published a single engraving of them. When therefore I first received a sealing-wax impression of one from Dr SWINEY, in August, 1833†, it is not surprising that I should have announced it as an *unique*. Colonel STACY's letters soon taught me to consider it in a very contrary light, and now on reference to Colonel TOD's personal narrative, I find that they had

* Rájasthán, i. 295.

† See Journal, Vol. II. page 416, and fig. 11, Plate XIV. of the same volume I then supposed the coin to be of gold; it was of silver.

not escaped him in his travels, although he has not favored the public with any drawings of them, or any comments on their age and locality

Munshí MOHAN LÁL's collection of coins made at *Cábul*, afforded me a favorable opportunity of ascertaining the accurate names and readings of the silver group, but unfortunately these do not embrace so much variety as the copper coins. The reason for this may be, that the munshi's collection was discovered in a foreign country A treasure accidentally dug up, however numerous, would naturally consist of the money then current, with a small admixture of that of preceding reigns. in fact, out of 100 coins, 65 belong to one type (figs 3, 4, 5,), 25 to another (figs 1, 2,), and only three or four to a third (figs 6,7,). Colonel STACY on the other hand had the advantage of exploring the very field in which they must have been at one period current, and his series is, therefore, much more complete, though rarely so numerous in any particular species A letter from this gentleman to my address, dated 2nd August, 1834, suggests, that "as the figures both on the obverse and reverse of these coins are evidently made up of letters, either of Sanscrit or some other Hindu characters, they should be submitted to the kind attention of the professors of the Hindu college. The great variety, and the general distinctness of the characters on them, holds out fair hopes of our becoming acquainted with the dynasty they belong to, as well as with many of the individuals of that dynasty The names placed against each by pandits, to whom they have been shewn, are worthy of no reliance The natives possess neither enterprize nor invention, when they find a letter or letters wanting, they will not attempt to fill up the blank"

The opinion here broached, that the outline figures were made up of letters, is supported by the authority of Colonel TOD, who remarks in the only passage I can find on the subject, (vol i p 698) "My envoys brought, from *Nadolaye*, a small bag full of curious hieroglyphical (if I may so use the term) medals of the *Chohan* princes One side represents a warrior on horseback, compounded out of a character to which I have given the above term, on some there was a bull; while others, retaining the original reverse, have on the obverse the titles of the first Islamite conquerors, in the same manner as the currency of France bears the effigies of LOUIS XVI and the emblems of the republic Whoever will pay a visit to *Nadolaye*, will find his labour amply rewarded, I had only leisure to glean a few of these relics, which yet formed a rich harvest."

When the singular contour of the horseman and bull is traced back to its original type in figures 1, 2, where the whole substance of the

figure is filled up, there does not seem to be much reason for imagining any intention of mystifying the device, otherwise than by the clouds of ignorance, when the engraver retained only sufficient knowledge of his craft to cut the outline of his device in relief, and latterly even seems himself to have lost sight of its meaning altogether, as in figs 48, *cum multis aliis*;—certain it is, that the title of hieroglyphic has been earned and won for this coin even from the antiquarians of the west, witness the following highly curious passage, brought to my notice by Dr SWINEY, in an American work on scripture geography*, applied to a wood cut of a coin in all respects the counterpart of our figure 3, which may have found its way to Egypt, in the course of commercial dealings, eight or ten centuries ago —

"This is an extremely curious medal, of silver, struck in Egypt before the reigns of the PTOLEMIES It represents on one side, a man on horse-back, and on the other, an ox of the humped kind lying down between his horns is the lunar crescent, and within that is a globe These symbols clearly refer this ox to Egypt The man on horse-back is the most singular part of this medal, none of the countries adjacent having adopted the type of a horseman There is every reason to believe that the letters on this medal are Persian, and that the person represented is ARYANDES, governor of Egypt under DARIUS, the last king of Persia, who then possessed this country, and who caused the governor to be put to death for coining money in his own name" !!

It can hardly be believed, that the nature of the characters should have been unknown to any but Transatlantic antiquaries, for they are in a very obvious form of Deva nágarí, and may be easily read where the letters are not cut off or otherwise obliterated

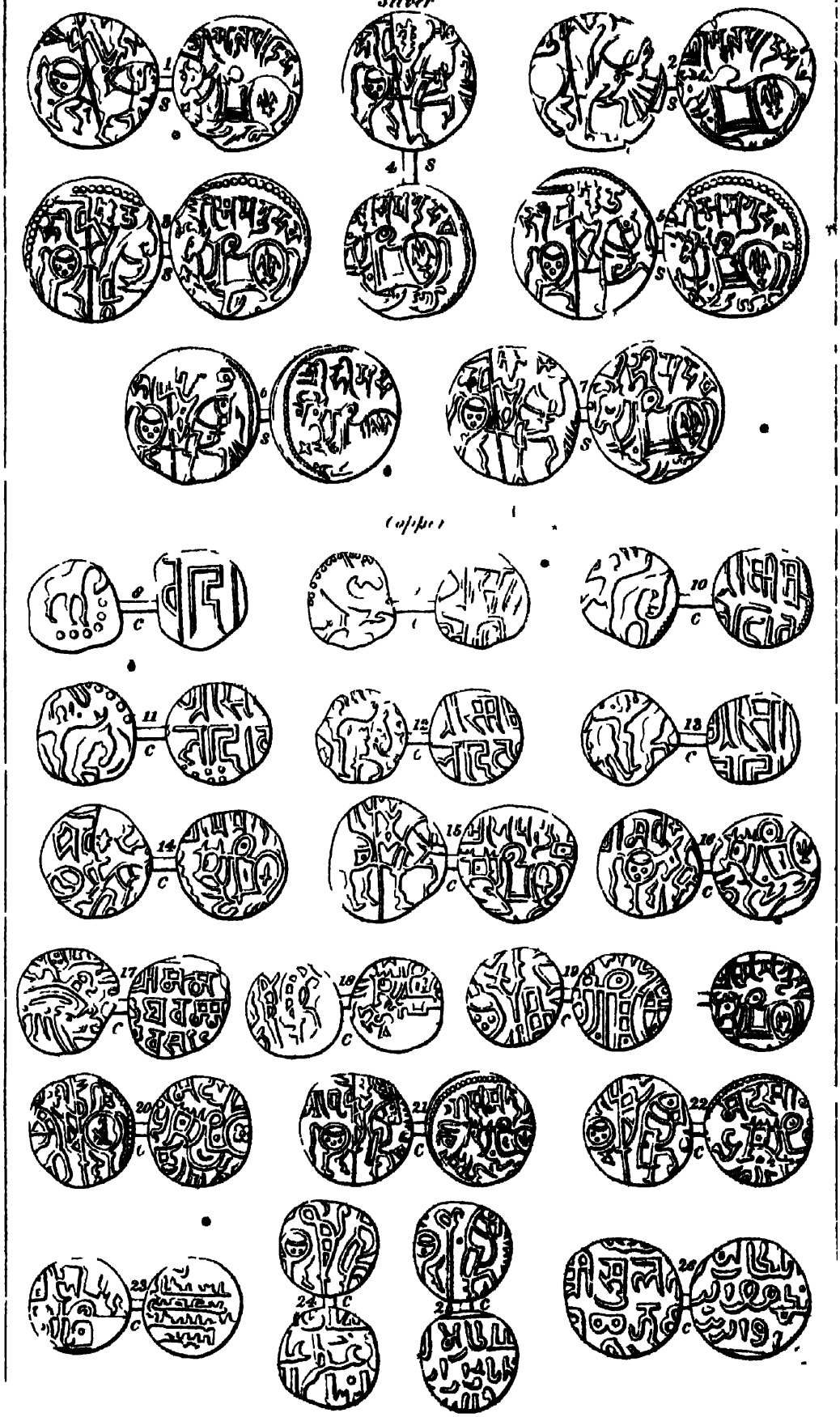
At the commencement of the foregoing essay, I alluded to this series as one of the four palpable imitations of a Grecian or Indo-Scythic model.—I had in my eye the coins of Azos and AZILISOS in particular†, which have a horseman with spear for the obverse, and a humped bull for the reverse. On being Indianized, the bull has become the *nandi* of Hindu mythology, with its ornamental *jhúl* or saddle cloth, and the trident or *tirsul* of SIVA impressed on its haunch The horse has in like manner, received the trappings peculiar to the country, the *zèrband* and *dúmchí*. The rider has still some traces of a flowing fillet from his cap (see fig 5,) but his dress is not otherwise open to criticism. I would not pretend to insist upon the direct filiation of the Hindu coin to what I have assumed as its prototype . but the adoption of the same elements for the device, it may be surely contended, argues some connection or descent —it is like the preservation of armorial insignia in a family, and on these grounds, we have pre-

* SMILEY's Scripture Geography, Philadelphia, 1835, page 151.

† See Plates XXII. XXIII. of the June No., figs. 9, and 28.

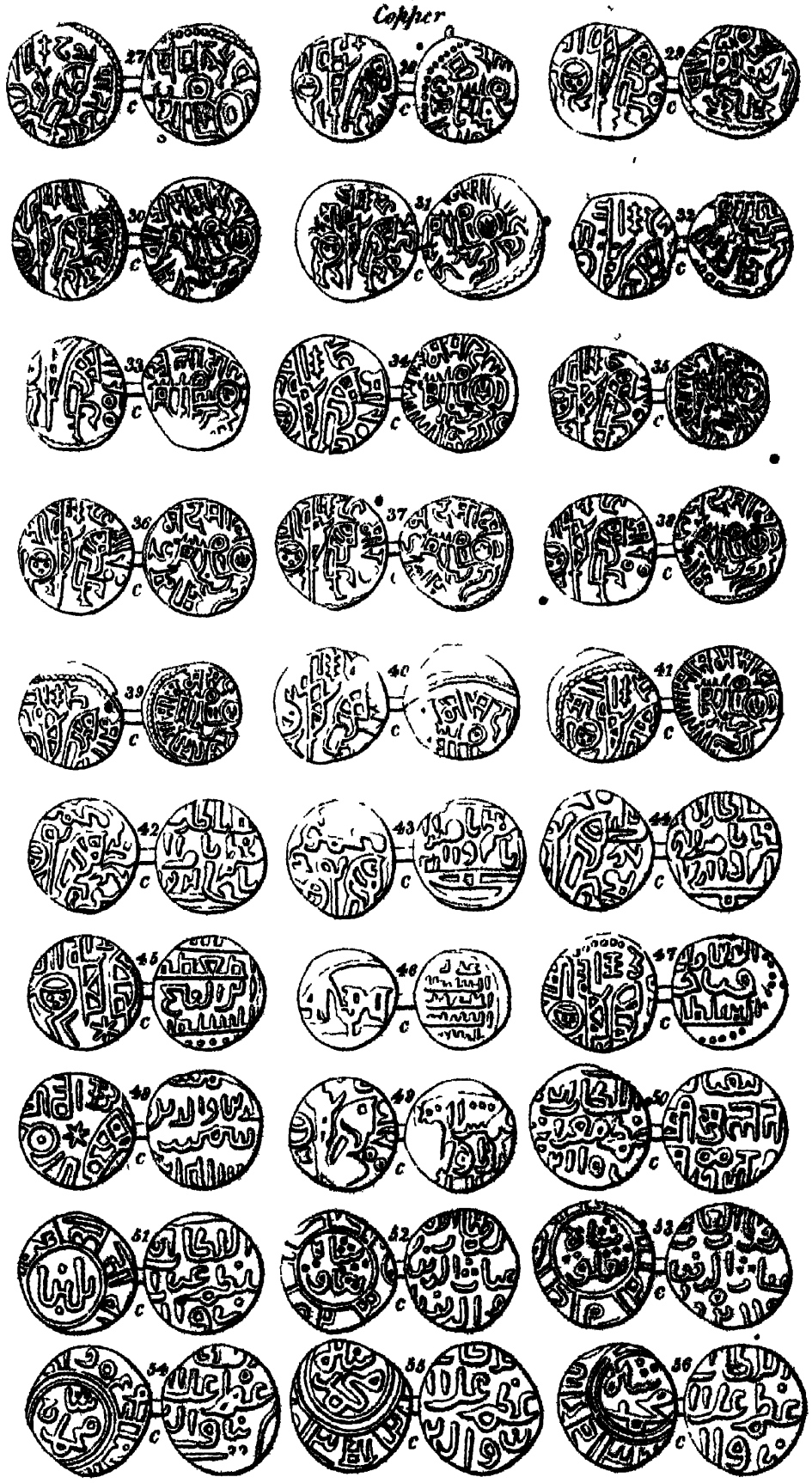
Ancient Hindu Coins

Silver



Hindu-Muhammedan Coins

Copper



sumptive evidence either of the Indo-Scythic descent of the reigning dynasty,—an hypothesis borne out by the traditions of many of the Rájpút states,—or of a mere imitation of the coin of a neighbouring nation, in consequence of a poverty of native invention

Before we proceed to canvas the epoch and country of this our third division of Hindu coins, which are matters entirely open at present, except so far that they have been called *Chohán* by Colonel TOD, and *Rájpút* by STACY, it will be convenient to take a view of all the specimens that have been collected

The whole series may be conveniently classed under three heads; namely, 1st, such as have genuine Hindu names and the oldest form of character, for the alphabet evidently undergoes modification as we advance —2ndly, those with Nágarí characters only, but expressive of Muhammedan names, either alone or conjointly with those of Hindu princes, and 3rdly, those retaining the equestrian device of the obverse, with also the name of the rája, but having the reverse occupied by a pure Arabic inscription.

I may premise that the average weight of the whole series of silver coins a little exceeds 50 grains, and that therefore they may be regarded as *tankas* of 3 *massas*, as was remarked of the oldest group and of the *Varáhas*

Figs 1, 2 These have been placed at the top of the list, because the relief in them is not confined to the mere outline The device has already been described There are letters on both sides of all the series, leaving us somewhat at a loss to know which side contains the rája's name, or whether the longer legend over the bull may not be merely his titles, the frequent occurrence of the *second* formula, on coins of various forms, is in favor of this view, but the actual name in the third is against it On the present coin, the most obvious reading of the longer epigraphe is श्री स्यालपति देव *Sri Syálapati dèva* Unfortunately the letters on the other side are cut off

Figs 3, 4, 5. The selection here was from 65 specimens, the collation of which left no doubt as to the context, unless in regard to the value of the fourth letter. Of the two readings suggested in my first notice of this coin श्री सामग्र देव *Sri Sámagra dèva*, or श्री सामन्त देव *Sri Sámanta dèva*, the latter is the most plausible, because SÁMANTA is a common Hindu name, a leader, captain, or champion and although the *nta* is more like गू *gú*, in the best specimens, there are other cases, such as figs 19 and 21, where it more nearly resembles the Bengáli न्त

On the reverse, are the letters भी and त, on either side of the head. These are ancient forms of भी and त *bhí* and *ta*. On fig. 4,

the latter is replaced by a non-descript flourish, so that the two are probably independent of one another in the reading.

Figs 6 and 7, the last of the silver specimens, exhibit the cognate name of श्री भीम देव, *Srí Bhíma dèva;* and on the obverse, the श्री of the foregoing example

Of the copper series, we may specify figs 14; 15, 19½, 21, 27, and 30, as having the *Sámanta dèva* legend over the bull, with other additions, or variations of style, on account of which they have been introduced into the plates.

But first in order should be noticed the six small copper coins, figs 8, 9, 10, 11, 12, 13 of Colonel STACY's cabinet, which are connected with the present group by the effigy of the horseman, while on the opposite we recognize the latter Canouj form of letter, and the usual termination of the coins, described in the preceding plate. A scrutiny of the whole series (some not included in the plate) has elicited the letters श्री सा म .. पदेव, the blank may be filled up with the letters *nta, pá*, making the whole title *Srí Samanta Pála dèva*, or if it be thought that there is not room for other letters, it may stand as *Srí Sámala dèva*.

Fig 17 Of this curious variety we have two or three samples the bull is omitted, and the field occupied entirely by the legend In the engraved figure, the commencement of the second line is cut off Colonel STACY's has a letter there, and his pandits read the whole, *Srí mam Kripa bamm bas*, but from the resemblance of the two final strokes to numerals, the appendage to the second *m*, and the analogy of the ordinary legend, I should prefer the reading श्री मन्म थवर्म्म देव सं १ *Srí man m thavarmma dèva, Samvat* 1 , the name and the date unfortunately remaining doubtful.

Figs. 21 and 30, are duplicates. one completing the missing portion of the other impression, but owing to the strange form of two or three letters, some doubt remains as to the correct reading On the obverse, we find आप्रछ राज देव *A'prichha Rája dèva*, and on the reverse श्री समन्त देव *Srí Samanta dèva*, with the addition of असावरी *Asávari*; the last syllables, वरी, might almost be read मी *mi* or वग *vaga*

Fig. 27, with the *Srí Sámanta dèva* very much perverted on the bull side, has a new name on the right of the horseman, श्री दनपाल देव *Srí Dana* (or *data*) *Pála dèva*.

Fig 28, has an unintelligible name on the bull side. the letters visible are . श्री वदासुर . . . , *Srí Vadá sura*

In fig. 29, the outline of the sacred bull is somewhat difficult to be traced The name below it begins with the letters श्री कु पा.. *Srí kupá*, or सा कुषा *Sá kusha*..

Fig. 31, bears on the obverse the name of श्री हर देव *Srí Hara dèva.* The reverse seems to begin with the same letters as fig. 30, viz. श सा *Asá*, after which follow at a short interval, . मसान देव *Masána dèva.*

It may be hereafter found that some of the above belong to what may be called the transition period, when attempts were made to express Musalmáni names and titles in the vernacular character of India, of which I will now endeavour to produce such instances as Colonel STACY's rich collection offers.

The name of the Rája on the obverse of all the transition or *link* coins is श्री हमीर: *Srí Hamiras*; this important and well-known name may be found, either in full or in part, on figs 20, (in this the engraver has reversed the whole die,) 22, 36, 37, 38, 39, and 40 The same name also occurs on figs. 44, 47, and 49, with an Arabic accompaniment, as will be presently noticed

The first example of a Moslem title in its simplest form occurs in figs. 32 and 35, in the Nágarí word सुरितान *Suritán*, this has no meaning in Hindi, and I conjecture that it is intended for the Arabic title, *Sultán* the remainder of the sentence is in these two instances wanting.

Figs 34, 39, 40, and 41 In these four we find a more complete paraphrase of the far sounding titles of the Delhi sovereigns, at least I conjecture that सुरितानसा समसदीन (or as in 34, देन) is nothing more than *Sultán Shah Shamsh ud-dín.*

Figs 36, 37, and 38, are equally capable, and only capable, of an interpretation on the same principle the Devanágarí letters on the reverse run thus सामहमद सामे *Sá Mahamada Sámè*, which I would convert into *Sháh Muhammed Sámè.* The initial word will admit of being read *Srí*, but the rest of the legend is quite clear and satisfactory.

The name of *Hamíra*, as before stated, is repeated on the obverse of all these curious coins. We have now to trace it into a field one step farther removed from the primitive standard.

Figs. 48 and 49. In these, the first of the succeeding group in point of date, the horse and his rider, are transformed into singular symbols, which only our prior acquaintance with the original could enable us to decypher. the word श्री on the first, and the termination of *Hamirah* मीर on the other, are still discernible in their usual position. On the reverse, the characteristic style of the Afghán coinage is adopted, and the Arabic version, were it completely visible, would evidently be السلطان شمس الدنيا والدين التمش *Ul Sultán Shems ul-dunya va ul-din Altamsh.* The reading commences from below.

Figs. 42 and 44, again exhibit to the right of the horse's head, the name of श्री हमीर: *Srí Hamiras*, as usual. On fig. 43, it escapes detec-

tion only by want of room on the field. In all three, the hieroglyphic which has hitherto passed for the helmeted head of the horseman, has been either designedly or unintentionally removed, and the Arabic word محمود *Mahmúd* substituted. On the other face, the full titles of this sovereign, who was the son of *Altamsh*, may be recognized without much trouble, thus السلطان الا *Ul Sultán ul A-*
عظم ناصر الد *ăzem Násir ul du-*
نيا والدين *nya va ul dín*
the inscription terminating in the "*Mahmúd*" of the opposite face

Fig 25, of the preceding plate, is another coin of the same name and nature

Fig 47 On this variety of the *Hamíra* group the Arabic titles are apparently السلطان فتاح الدنيا والدين *Ul Sultán Fatah ul-dunya va ul-dín* I only perceive one specimen of this reading in Col Stacy's collection.

Fig 45 The next variety of the mixed impression retains the horseman with the Hindu name, but the Arabic titles are now السلطان ابو الفتح المعظم *Ul Sultán Abu ul fateh ul Moazzem* .

Fig 24, is the last on the list, exhibiting the semblance of a horseman The small portion of the Arabic legend, included on the reverse, is fortunately sufficient to point out the owner, and enable us to complete it السلطان الا عظم علا الد نيا والدين *Ul Sultán ul áăzem Ala ul dunya va ul dín*, (*Muhammed Shah*)

Figs 23 and 46 There still remains undescribed a curious variety of the "bull and horseman" coin, in which the bull side is retained with the *Srí Samanta dèva*, while, contrary to usage, the horse is omitted, or replaced by an Arabic legend in the connected or flowing character The whole purport of it is not well ascertained, but the legible portion of the two middle lines is thus read by some السلطان السطان الاعظم عدل *Ul Sultán ul áăzem, ul Sultan Adil* Others find in it the name of *Subactegin*, and I am inclined to adjudge it rather to an earlier period than the *Ghórí* dynasty, both from the Arabic style, and from the retention of the name of *Samanta dèva* on the reverse

Figs. 26 and 50 We now pass to a new form of coin, allied to the foregoing, indeed, by the retention of Hindi on one side, but differing from them in the total rejection of the pictorial emblems That the proper orthography of the word *Sultán* was now attained is evident in the initial letters श्री सुल्ता *Sri Sultá* The lower line presents three letters मव्वज *mavvaj*, which may be intended for *moazz*, thus agreeing with the Arabic of the opposite face الاعظم معز الدنيا والدين السلطان *Ul Sultán ul áăzem moaz ul dunya va ul dín* (either *Bairam*

Sháh, 1239, or *Kai Kobad*, 1286?) the only two emperors which bore the appellation of *Moaz ul-dín*.

From the last coin, the passage is easy to those of purely Muhammedan aspect, such as are described in MARSDEN's *Numismata*, vol. ii., but this author does not appear to have had an opportunity of examining an intermediate group of coins, on which, in deference to the conquered people, a Nágarí inscription was retained on the margin.

They are by no means uncommon, yet it is rare to find the marginal legend perfect. MARSDEN's DCCXIII, of *Toghlak Shah*, is of this species, but in it the Nágarí falls beyond the limits of the disc

I have therefore thought that a few examples of this group might form a proper appendage to the present series, and have accordingly introduced three varieties from Colonel STACY's and my own collections, to fill up the plate

Fig 51, the earliest in date, must be read from the reverse السلطان الاعظم غياث الدنيا والدين بلبن *Ul Sultan ul áăzem Ghiás ul dunya va ul-dín*, (and in the centre of the obverse,) *Balban;* the latter is encircled by a Nágarí sentence, of which श्री सुलताण is visible

Figs 54, 55, and 56, are coins of the celebrated ALAUDDIN*, the disposition of the titles and name as before السلطان علا الدنيا والدين محمد شاه *Ul Sultan Alu ul dunya va ul-dín Muhammed Shah* On the margin, श्री सुलतानशा ७०६ *Srí Sultán Sháh*, (A H) 706

Figs 52 and 53, close our present series, they bear the titular designations of TOGHLAK SH'AH, السلطان الاعظم غياث الدنيا والدين تغلق شاه *Ul Sultán ul áăzem Ghiás ul dunya va ul-dín, Toghlak Sháh* The Nágarí of the margin is similar to the last, but imperfect, as if cut by one ignorant of the language

After the complete and satisfactory evidence we have just examined, little need be said as to the epoch to which at least the mixed or Hindu-Muhammedan portion of the bull and horseman group belongs. for, from the names inscribed in Nágarí or Arabic, or from the titles or cognomina, which are in fact as frequently the names by which the Musalmán sovereigns are known, we can nearly fill up the first century of the Patán monarchs of Delhi, thus

Srí Muhammed Sáme is, I presume, MUHAMMED BIN SÁMUL GHORI, the first of the dynasty, commonly known by his cognomen *Shahab-ul-dín*, who possessed himself of the throne of Delhi, A H. 588, A D 1192

Shamsh ul-dín, in Nágárí and Arabic, is *Altamsh*, A H 607 A. D. 1210

Moaz ul-dín, must be BAIRAM SHÁH, his son, 637 1239

* At the time of engraving the plate, I mistook the MUHAMMED SHA'H for the son of TOGHLAK the date corrects me.

Alá ul-dín, may be MASAUD, the son of FIROZ,	A. H. 640	A. D. 1242
Násir ul-dín, denotes MAHMÚD, son of ALTAMSH,	643	1245
Ghiás ul-dín, BALBAN, has the full name also,	664	1265
Alá ul-dín, MUHAMMED SHÁH, bears its own date,	695	1295
Ghiás ul-dín, TOGHLAK SHÁH, cannot be mistaken,	721	1321

It is not from these names, however, but rather from the Hindu ones, that we must seek to fix the *locality* of the *bull* and *horseman* insignia, and the readiest mode of arriving at the truth is to proceed backwards, the best chance of verifying the names of Rájas being through their preservation, even in a corrupt form, in the pages of Moslem history. HAMIRAS, the name common to so many of the series, is admirably adapted for our purpose. He can be no other than the HAMIR* of the *Mewár* chronicles, who, born and nurtured in the forests of *Ondwa*, was destined to revive the glory of *Chitór*, even after it had succumbed to two successive assaults under the unsparing ALLA We find it recorded in FERISHTÁ's history, (A. D. 1304,) that "at length finding it of no use to retain *Chitór*, the king ordered the Prince KHIZR KHÁN to evacuate it, and to make it over to the nephew of the Rája This Hindu Prince, in a short time, restored the principality to its former condition, and retained the tract of *Chitór* as tributary to ALLA-UD-DIN, during the rest of his reign†" According to TOD‡, "HAMIR succeeded to the throne in Samvat 1357, (A D 1300,) and had sixty-four years to redeem his country from the ruins of the past century, which period had elapsed since India ceased to own the paramount sway of her native princes" These 64 years would include nearly the whole reign of ALLA I, and that of his successors OMAR, MUBÁRIK, KHOSRU, TOGHLAK, his son MUHAMMED, and FIROZ On the coins themselves, we have found the obverse of HAMIRA coupled with the stamp of *Mahamad Sámè*, *Shams ul-dín*, *Alla ul-dín*, *Násir ul-dín*, and *Fatáh ul-dín*; three of whom are clearly anterior to the reign of ALA-UD-DIN, as ALTAMSH alone bore the cognomen of *Shamsh ul-dín*; his son that of *Násir ul-dín*; and MAHAMMED GHORÍ that of *Sámè*. We might indeed read the latter word *Sání*, and so apply it and the title of *Násir ul-dín* to MUHAMMED II. the son of TOGHLAK, whose cognomen is not recorded But still *Shamsh ul-dín* remains unexplained, and the apparent anachronism cannot be accounted for. It should be noted that the name of HAMIR is not mentioned in FERISHTA, but only the "nephew of the Rája Ratan Sinh." The cognomen *Fatáh ul-dín* is not to be found in the whole line of the *Patán* Sultáns.

* *Humberdeo* of BRIGG's Ferishta, *Amir deo* of Dow, when speaking of the siege of Rintumpore he is not mentioned afterwards by name, nor as of *Mewár*.

† BRIGG's Ferishta, i. 363. ‡ Rájasthán, i. 269.

Mewár had been in subjection to the Delhi monarchs since the invasions of MUHAMMED GHORI, ALTAMSH also invaded it in 1210: hence there can be the less doubt that the barbarized names, *Srí Mahamad Sáme* and *Srí Samasoden*, on the indigenous coinage applied to these two sovereigns, notwithstanding the difficulty above alluded to.

The fortunate preservation of HAMIRA's name, in conjunction with those of his allies, upon these coins, proves at any rate the identical place of their coinage, and fixes it at *Chitór*, the seat of the dynasty founded by BAPPA, in A D 727, after the destruction of the *Balhára* monarchy of *Saurásh̄tra*. This information also limits our search for the names previous to *Hamíra*, to the descendants of BAPPA Rá-el, of whom two or three genealogical lists have been preserved in various inscriptions, some decyphered and explained by Mr. WILSON, in the *As. Researches*, vol. xv., and others by Colonel TOD. The latter authority enjoyed the advantage of filling up the history of *Mewár* from the national poems and traditions of the place, but it must be confessed, as strangely perplexing, that the names of the immediate predecessors of HAMIRA should be at total variance in the Hindu and the Muhammedan accounts. Thus, FERISHTA makes RAY RATAN SE'N the Rája of *Chitór*, who was taken prisoner at the sack of the fort, and who escaped through a romantic stratagem of his daughter, and continued to ravage the country until his nephew was installed as above stated in the masnad. Colonel TOD makes the name of the imprisoned Rája, BHÍMSI, and that of his daughter, PADMANÍ The circumstances which led to the admission of the fair heroine into the hostile camp with her 700 litters, each freighted like the Trojan horse, are also differently related by the two authors. It will be a strong motive for the preference of the Hindu account, if the BHIMA DE'VA of our coins can be identified with this BHÍMSI (*Bhima sinha*) but the short interval from his return to *Chitór* to the death of himself and his family in the sack which followed, would hardly allow the issue of a regular coinage in his name at such a turbulent period The style also of the Nágari alphabet (the भ *bh* especially) differs materially from that of HAMIRA'S name Yet there is no other *Bhíma* in the *Mewár* list. FERISHTA mentions one (*Bhím-dew*) as the brother of SHUNKUL DEW, the Prince of *Deogir*, contemporaneous with ALLA, but he does not seem to have attained the throne In the collateral line of the *Guyerát* Rájas, the same name occurs thrice, the last in 1209, of whom the Moslem histories make frequent mention, but the insignia of this *Ráj* are of a distinct character, and will not admit of our transferring the bull and horseman device thither for an owner*

* BHIMA DE'VA of *Guyerát* was defeated by MUHAMMED GHÓRI' (or *Sámè ?*) in A. D. 1178.

It provokingly happens that the nine rájas immediately preceding Bhímsi, in Tod's list, are omitted as an uninteresting string of names, thus shutting out a chance of recognizing many of the petty names of our coin list We must in consequence pass over *Danapala dèva*, *Kripá*, *Vadasur*, &c and retrograde to *Sámanta dèva* This name is one of those on the inscriptions from mount *Abu (Arbuda)**, the 18th of the *Guhila* family, to whom an actual date is also assigned, namely A D 1209 The objection to this is, like that to *Bhima*, that the date is too modern for the alphabetical type, moreover, from Tod we learn, that it was Rahup of *Mewár* who was attacked by Shemsh ul-dín *(Altamsh)*, in 1210-20, and this name we have recognized in the more modern Nágarí on several of the horseman coins

There are other *Sámanta (Sinha) dèvas* in the *Anhulwara* line of *Gujerát* of an earlier period, both in the *Ayin Akberí*, and in the native chronicles, indeed, Banarája himself, the founder of the *Chohán* race at *Anhulpur*, was the son of a Sámanta Sinha, fixed by Tod in A D 745 and it is worthy of particular note, that the first prince restored to the *Gujerát* throne, near two centuries after the overthrow of the Balháras by the Parthians, is called in the *Ayin Akberí*, "Saila dè'va, who was previously living in retirement at *Ujjain* in A D 696" Now the name on the coin which I have assumed as the most ancient of the series, and therefore placed at the top of Plate XVI, is Syalapati dè'va, a name apparently taken from the country where he ruled†, but which might easily be converted, either with or without intention, into S'aila dè'va, a title denoting dominion or birth among the mountains.

In conclusion, it should be borne in mind, that both the *Mewár* and the *Gujerat* lines are of one family, that of the *Gehlote* or *Sesodia* tribe, to which, though arrogating to itself a descent from the Sun, the Persian historians uniformly ascribe a *Parthian* origin May not this be received as a good foundation for the Indo-Scythic device on their coinage, or on the other hand does not the latter fact, supported by historical tradition, go far towards the corroboration of the extra Indian origin of the *Mewar* dynasty?

Plate XLIX Saurashtra Coins

In antiquity the present series doubtless should take precedence of those depicted in the three last plates, perhaps it should rank next to the *Behat* or *Buddhist* group, for it has an important symbol in common with them My only reason for delaying to notice it until the last, has been the hopes of receiving a further accession of

* As. Res vol. xvi page 322.

† *Syalakoth*, the fort of Syála near the Indus, was once attacked by the armies of *Mewár*.

Hindu Coins – Saurashtra Series

specimens from Lieutenant BURNES, who lately forwarded me several coins, and afterwards wrote me that he had come on a further treasure of them in the course of some excavations in Cutch

A few specimens of the new accessions, selected by Mr. WATHEN at Bombay, did not add much to the variety with which I had already become acquainted from the collections of KERÁMAT ALI and MOHAN LÁL, of Lieutenant CONOLLY, and especially of Colonel STACY. Some of these I have before made known other varieties have been long since published in Colonel TOD's plate of coins in the Transactions of the Royal Asiatic Society, but there are many entirely new in the plate I am now about to introduce to my readers.

In the first place, however, I am pledged to prove that the type of this series of Indian coins is a fourth example of imitation of a Grecian original The very style and beauty of the profile on some of the earlier specimens, (figs 1, 3, 10,) might be enough to convince an artist or a sculptor of the fact, for we might in vain seek such accurate delineations of the human features on any genuine Hindu coin; witness the degradation to which the very same device soon arrives under its Hindu adoption But a comparison with the coins of the *Arsakian* and *Sassanian* dynasties of Persia, which are confessedly of Greek origin, may go farther to satisfy a sceptic on this point. The mode of dressing the hair belongs exclusively to Parthia. none of the genuine Bactrians even have it, and in the whole of our Indo-Scythic acquaintance, it will only be seen on the medals of KODOS, engraved as figs 11, 12, and 13, of Plate XXV. of the present volume In him the likeness is perfect, and him, therefore, I would deem the progenitor of this *Saurâshtra* group, so similar in size, weight, metal, and contour of the head The marked distinction between the two is confined to the reverse. Here a long Devanágarí inscription, encircling a curious monogram, is substituted for the standing figure with his hitherto uninterpreted motto, MAKAP .. ΡΑΗΘΡΟΥ.

Apropos of this seemingly impossible Greek combination; even while I am writing this passage, the explanation starts to my imagination, like an enigma or puzzle laid aside for an interval, and taken up by chance in a position in which its solution strikes palpably on the eye, and the wonder arises how it could have escaped detection at the first! It may be remembered, that in describing the various mottos on the reverses of the Kanerki and Kadphises group, in my last notice, I remarked a curious instance of the word ΟΚΡΟ "the sun," being changed into ΑΡΔΟΚΡΟ, "the great sun*."

* Mr. V. TREGEAR writes to me, that he has just met with a duplicate of the gold ΑΡΔΟΚΡΟ coin, plate L., fig. 6. It was stated to have been dug up by a pea-

Now ΑΘΡΟ was also one of the original simple denominations of the same class, supposed to be of a like import with *Mithra*, or the sun By the rule of mutations, the addition of ΑΡΔΑ or ΑΡΤΑ, great, would lengthen the initial vowel of this word, or change it into an H, and produce the compound form ΑΡΔΗΘΡΟ, "the great *Athra*" Giving a Greek termination and putting it, as usual, in the genitive case, we shall have ΜΑΚΑΡΟΣ ΑΡΔΗΘΡΟΥ, "of the blessed *ard-Athra*" This is the very expression existing on the coin, supplying only a single letter, A, which is cut off through the imperfection of the die Hear we have a happy illustration as well of the connection between the several groups and their respective objects of worship, as of the gradual and necessary development which these interesting researches are calculated to produce Further, on conversing, this moment, with a pandit from the *Panjáb*, I learn that the sun is called in the *Pushtu* language, *Ait*, आएत or *Ayat* आयत, a corruption, he says from the pure Sanscrit आदित्य *Aditya*, whence may be derived in a similar manner *Ait-war* or *etwar*, the common *Hinduí* expression for Sunday To all of these forms, the similarity of the Zend word *Athro* is obvious, and we need therefore seek no refined subtlety in admitting it to worship as the etherial essence of the sun, since it can with so much more simplicity be understood as a common denomination of the solar orb itself It should be remarked, that the effigy of ΑΡΔΗΘΡΟ, like that of ΑΘΡΟ, has flames on his shoulders

I will not stop to inquire whether the change from the Sanscrit ΟΚΡΟ (*Arka*) to the *Pushto* or *Zend* ΑΘΡΟ (*Aita*) has any possible connection with a parallel charge in the family designation of the *Sauráshtra* princes, who were in the first centuries of the Christian era marked by the affix *Bhatárka*, (cherished by *Arka*,) but afterwards, for a long succession of reigns, were known by the surname of *A'ditya*, but will proceed to describe the immediate contents of the plate now under review

Figs 1, 2, 3, are placed at the head of the series, because in them the head bears the nearest analogy to its prototype In fig 1, indeed, the letters behind the head may be almost conceived to belong to ΚΩΔΟΥ In the centre of the reverse is the so called *chaitya* symbol ☘ which, had it only occurred on these descendants of a Mithraic coin, I should now be inclined to designate a symbol of the holy flame,

sant in the Juanpur district, along with 50 others, which were immediately committed to the melting pot. I may here take occasion to notice, that the pilgrim who sold the three coins of KADPHISES in the bazar of Benares was not a *Marhatta*, but a native of the *Panjáb*.

trilingual and pyramidal, of the Sassanian fire-worship The marginal writing may with certainty be pronounced to be an ancient form of Sanscrit, but I cannot attempt to read it In figures *a*, *b*, *c*, I have copied the lines from three other coins, and have thus ascertained that a portion of the legend is the same in all, while the remainder varies. The former doubtless comprehends the regal titles, but in it there is no approach to the ordinary Indian terms of Rája, Rao, &c The six parallel letters may be read परकृतपस

Figs 4 and 5, differ from the preceding in the central device, which now bears a rude resemblance to the human figure The letters and general execution are very imperfect

Figs 6 to 9, are one step further removed from perfection The legend where best preserved, as in fig 9, appears a mere repetition of the letter *p*, with the suffix *r*, *ri*, and *y*. There are three letters behind the head in fig 7, which may be taken either for corrupted Greek, or for the Pehlevi of the Sassanian coins, o⊔o The central symbol has the form of a trident Lieut BURNES informs me that several hundred of these three species of coins were found in Cutch in 1830 in a copper vessel buried in the ruins of *Puragarh*, 20 miles west of Bhoj, a place of great antiquity, and yet marked by the ruins of a palace and a mint

Figs 10, 11, 12, are of a different type, though nearly allied to the former, they are not only found in *Gujerát*, but at *Kanouj*, *Ujjain*, and generally in Upper India Lieut CUNNINGHAM has just sent me impressions of five very well-preserved specimens procured at Benares, on which in front of the face are seen some letters very like the Pehlevi character, α < ∽ The Sanscrit too is not of the elongated form of the upper group, but exactly like that of Mr WATHEN's *Gujerát* inscriptions Not having yet succeeded in decyphering them, it is needless to copy out the mere letters at present The symbol in the centre will be recognized as the peacock, sacred to *Kumára*, the Mars of the Rájputs, alluded to in the preceding observations.

Figs 13, 14, 15 The popular name for these rude coins, of silver and of copper, is, according to Lieut BURNES, in *Gujerát*, "*Gadhia ká paisa*," *Ass* money, or rather, "the money of *Gadhia*," a name of VIKRAMÁDITYA, whose father JAYANTA, one of the *Gandharbas*, or heavenly choristers, is reputed to have been cursed by INDRA, and converted into as ass WILFORD, in his Essay on the *Era of Vikramáditya*, endeavours to trace, in this story, the Persian fable of BAHRAM-GÔR's amours with an Indian Princess, whence were descended the *Gardabhina* dynasty of Western India, (*gardabha*, being, in Sanscrit.

equivalent to *gór**, an ass.) The story is admitted into the prophetic chapters of the *Agni Purána*, and is supported by traditions all over the country. Remains of the palace of this VIKRAMA are shewn in *Gujerát*, in *Ujjain*, and even at *Benares*! the Hindus insist that this VIKRAMA was not a paramount sovereign of India but only a powerful king of the western provinces, his capital being *Cambát* or *Cambay* and it is certain that the princes of these parts were tributary to Persia from a very early period The veteran antiquarian, Colonel WILFORD, would have been delighted, could he have witnessed the confirmation of his theories afforded by the coins before us, borne out by the local tradition of a people now unable even to guess at the nature of the curious and barbarous marks on them. None but a professed studier of coins could possibly have discovered on them the profile of a face, after the Persian model, on one side, and the actual *Sassanian fire altar* on the other, yet such is indubitably the case, as an attentive consideration of the accumulation of lines and dots on figs 13, 16, will prove The distortion of the face has proceeded from an undue relief being given by the die-cutter to the forehead and cheek and this has by degrees apparently deceived the engraver himself, who at last contents himself with a deeply projecting oblong button, encircled by dots, (figs. 16—18)! Should this fire-altar be admitted as proof of an Indo-Sassanian dynasty in *Sauráshtra*, we may find the date of its establishment in the epoch of YESDIJIRD, the son of BAHRAMGOR, supported by the concurrent testimony of the *Agni Purána*, that VIKRAMA, the son of GADHÁRUPA, should ascend the throne of *Málavá* (*Ujjain*) 753 years after the expiation of CHÁNAKYA, or A D 441

Fig 17, is one of several very curious coins in Colonel STACY's cabinet The obverse shews it to be a direct descendant of 15 or 16, the "*Chouka-dúka*" of Colonel STACY, while the Nágarí inscription of the reverse is at once perceived to agree with the second, or *Gaur*, series of the *Kanouj* coins I adverted to this fact before, and stated that it seemed to point to the paramount influence of the PÁLA family of *Kanouj* from *Gaur* in Bengal to *Gujerát*† The inscription has the letters श्री सा लदेव probably *Srí Sámanta* or *Sámara Pála dèva*

Fig 18, is a more modern variety of the *Chouka-dúka*, on which the fire altar is replaced by Nágarí letters of the eleventh or twelfth century. The reading appears श्री कौज *Srí Kanja*? but it is more probably श्री काल *Srí Kála*, for we find a KÁLA DE'VA in the *Gujerát* list towards the close of the 11th century, whom WILFORD would identify with VISALA DE'VA of Delhi

Figs 19, 20 I have placed these two novelties from Colonel

* As Res ix. 155 † See observations in page 682.

STACY's cabinet, in juxtaposition with the *Sauráshtra* group, because we see in them the evident remains of the fire-altar device of figs 13, 15. The body of the altar only is removed and replaced by the Sanscrit श्री *Srí*, the opposite face has the very legible letters हासस ४० and ४१ *Hásas*, 40 or 41 The explanation of हासस् in WILSON's Dictionary is "the moon (in the language of the *védas*,)" but it would be hazardous to interpret *Srí Hásas*, as indicative of a lunar worship, or an adoption of a lunar motto, in contrast with the solar effigy and the fire emblems that preceded it श्री *Srí*, by itself, is still impressed upon the *Sháh-Alem* coin of *Málwá*, which is denominated from this circumstance the *Srí sáhy* rupee* It is an epithet of the goddess LAXMI', and denotes pure Hinduism in the reigning dynasty

Hás, taken separately, may be a contraction of *Hastinapur*, or *Hansí*, the place of coinage, and स ४० may be *Samvat* 40 or 41, the year of reign

Figs 21 and 22, should rather have found a place among the *Pála* coins of *Kanouj*, for on the reverse of both sufficient of the *Gaur* alphabetic characters are seen to enable us to fill up the whole reading as श्री अजय देव *Srí Ajaya dèva* The obverse seems to be a rude outline of a horse or a bull

At the foot of this plate I have inserted a few miscellaneous coins, which I was doubtful where to place with propriety, or which have reached me since the foregoing plates went to press

Fig 23, is in Colonel STACY's collection, a brass coin of unique appearance, on the obverse, a seated figure, adorned with a glory, on the reverse, an urn containing flowers, and across the field, in the ancient form of Sanscrit वगुपति *Vagupati*, around the margin, on both sides, is a garland of roses.

Fig 24, is a recent accession to Colonel STACY's collection on one side a bull and staff, with the unknown word [illegible], on the other side, the peacock of *Kumára* and a palm tree? This coin is evidently allied to those found by Mr SPIERS, in the Allahabad district, and figured in Plate XXVI of vol iii, two of them are here re-engraved as being more in place. Lieut CUNNINGHAM has a duplicate of 25, with a fuller inscription in the Allahabad form of Nágarí, I shall take a future opportunity of engraving it

Fig 27, is a copper coin found in the parcel lately received from Syed KERÁMAT ALI' It is remarkable for containing the motto of the Rajpút series श्री समग्र देव *Sri Samagri (or Samanta) dèva*, with an elephant instead of a bull, while on the reverse, the rude outline of a horse without rider seems encircled by a Pehlevi legend, a coin

* See Useful Tables, Part I.

nearly similar was engraved in the plate of Lieutenant Burnes' coins, Plate XI, fig 17, page 318 of vol ii

Fig 28, from the same source as the last, is also nearly a duplicate of fig 14, of the above plate, except that it has the *sinha*, a lion, for reverse, instead of the horse, the letters correspond exactly, but though individually distinct enough, I can make nothing of the context

With these I close my present notice, not I fear before I have tired out many of my readers! and it is with some compunctious feelings towards all but the few whose zeal in the cause of Indian numismatology equals or surpasses my own, that I announce my having received fresh materials, from various quarters, wherewith to revive the subject in the ensuing year Mr Masson's second memoir must also find a place in the January number On some future occasion I hope to be able to strike off a fresh edition of the coin plates, and to gather all that has been written on the subject, into a distinct volume, when the train of discovery shall begin to relax, and the materials scattered through the pages of the journal may be supposed to comprise most of the varieties of the ancient coins of India*

IV —*Geological Observations made in a journey from Mussooree (Masúrí) to Gungotree (Gangautrí)* *By the Rev* R Everest.

Mussooree is situated upon the outermost ridge of the Himálaya mountains, which these ranges is made from N. W to S E nearly, and presents a bold escarpment towards the valley of *Dehra*, or the *Dún*, above which it rises to the height of nearly 4000 feet

This ridge consists of beds of compact limestone alternating with others of a soft slate with an earthy fracture, and exhibits certain characteristics, both in its mineral structure and in its general outlines, analogous to the transition limestone of the north of Europe, and the mountain limestone of England Its most general colour is bluish black, and from this it passes through grey to greyish white, and again, on the other side to perfect black, not differing there from the lucullite, or compact black marble (as it is called). It is carboniferous. it is highly cavernous Many varieties emit a fœtid smell, probably of sulphuretted and carburetted hydrogen indeed where the rock is quarried, the smell is similar to that at the mouth

* I issue with the present number a continuation of the Appendix of "Useful Tables," containing Genealogical Tables of the principal Hindu dynasties, which will assist the reader very much in understanding the allocation of the various series of coins described above the tables were formed principally with this view

of a coal-pit These carboniferous or coaly varieties have, however, one peculiarity They are in some places highly vesicular, so much so as to resemble a grey lava, and in this state appear to have partially suffered from the action of heat Mr FISHER, in his account of the Mussooree limestone, (see GLEANINGS for May, 1832, p 194) states that it is "highly crystallized," but I did not meet with any such rock during my stay in the neighbourhood, nor see any specimens of it

The slate that alternates with the limestone is of various colours, bluish black, grey, greenish grey, brownish red, purplish, and yellow. It is generally soft, and crumbling, and will not split into large plates but about two miles west of the station, below the peak called *Háti-paon* and nearly half way down the hill, a bluish black variety is found, hard enough to be used as a roofing-slate. Somewhat to the west of this, on the *Dudhillee* hill (a station of the Trigonometrical Survey), a trap rock makes its appearance It is to be met with at the bottom of a small water-course, and may be traced for about half a mile in a direction nearly parallel to the range of the mountains It is composed in some parts principally of compact white felspar and green diallage, in others principally of hornblende It was not possible to trace the manner of its connection with the adjacent strata, which are evidently much disturbed, though they had not suffered any change in mineral character by contact with it Probably it has cut through them as a dyke, and the continuation of it may again be met with about a mile to the eastward, where a black heavy trap is to be seen, containing crystals of bronzite imbedded. The general range of these alternating beds of slate and limestone appears to be nearly parallel to that of the direction of the mountains, but not exactly so, as it approaches somewhat more to a north and south line, the dip being a little to the northward of the east, and the angle of it from 20° to 30° The slopes are very steep, usually covered with a luxuriant vegetation, and remind us of those in Cumberland and Derbyshire, though, of course, on a much larger scale. In the Mussooree rock, however, there is a great deficiency of mineral veins As we travelled eastwards from Mussooree to Landour, we found, a short distance beyond the hospital, quartzy-sandstone, of a white and greyish colour lying upon the soft, earthy slate This appearance continued four miles further on to Soakolly, the quartzy-sandstone capping the peaks, and the slate underlying it From Soakolly we descended for several miles, in a N N E direction, over alternating beds of quartzy-sandstone and slate, to the Agilwar river, which runs with a westerly course to the Jumna. The slate,

which alternates with the quartzy-sandstone, often becomes a distinct grev-wacke, consisting of a greyish green base, with numerous angular fragments of clay-slate imbedded No such appearances could be observed in the slates which alternate with the Mussooree limestone, and this circumstance, coupled with that of superposition, seems to mark the quartzy-sandstone as the newest formation of the two

To the north of the Agilwar, we passed over one more ridge of apparently similar composition to the one just described, and then descended into the valley of the Ganges This valley, where we came upon it, is full a mile broad, and exhibits at different heights, say from 2 to 300 feet above the present level of the stream, flat terraces of gravel, containing boulders, from the size of a pumpkin downwards, perfectly similar to what form the present bed of the river These appearances continue all the way to its source In the bed of the river and the precipitous banks that enclose it, we found strata of blue slate, hard and splitting into large plates, uniform in colour and general character, and inclined at a considerable angle to the N E —a slate widely different from the soft and parti-coloured varieties, that alternate with the limestone of Mussooree As we advanced northwards, where our road led us to a considerable height above the river, we met again with a limestone and slate similar to that at Mussooree, and the overlying quartzy-sandstone, apparently capping all the heights in the neighbourhood At the end of our second day's march along the course of the river, the quartzy-sandstone had become the predominant rock, and the slate had nearly disappeared, being only found in the lowest ground opposite Ballahaut The line of junction of the two was seen only a few feet above the level of the river Somewhat before this, the slate had partly assumed the character of talc-slate, having a faint glimmering lustre, and a soapy feel Beyond Ballahaut we continued travelling near the line of junction of the two formations, the slate gradually passing into a perfect talc slate, and the quartzy-sandstone becoming rather more crystalline than before. Perhaps the name of quartz rock might be more appropriate to it, though it still exhibits in some places traces of round grains agglutinated together About Batwaree, two marches in advance of Ballahaut, the quartzy-sandstone ceases on the low ground and the slate contains a mixture of quartzy and felspar, forming a talcose gneiss with hornblende occasionally intermixed Traces of the quartzy-sandstone yet remain upon the cliffs above for some miles farther to the north, where a gradual passage of it may be observed into the talcose gneiss. We found this talcose gneiss for two marches further to the north, containing, however, at times a

good deal of mica, and, rarely, garnets The valley in which the river flowed had become narrower day by day, and was now nothing but a channel of the breadth of the water course, from which cliffs nearly perpendicular rose, on either side, to the height of several thousand feet, shewing a section of the different beds from the top to the bottom The rock was evidently approximating to a real gneiss, but it was not until the third day's march from Butwaree, between Daugal Dhurmsála and the village of Sookee, that a gneiss and mica slate formation appeared in its usual features of grandeur, and with its usually-accompanying minerals Here the river flows in a cut through a ridge, which to the west forms the snowy peaks from which the Jumna takes its rise, and continuing to the east, always above the line of forest, and often far above that of perpetual snow, runs to the south of the temple at Gungotree Bare precipices, thousands of feet in height, and pinnacles thrust into the sky—those characteristic pinnacles which in other countries have received the names of *horns, spids,* and *aiguilles*, and here are called by a term of similar import, *kantas*, present themselves prominently to our view—and as we climb over the ruins below, among blocks bigger than houses, by the side of which the foaming river runs, we find a well-defined gneiss and mica slate, with kyanite and garnet imbedded. A thin stratum of coarse-grained snow-white marble was also seen On approaching the village of Sookee, white layers and veins were seen in the cliffs that overhung us. They were composed of a coarse-grained granite, containing crystals of black tourmaline imbedded This granite is seen in the mass a short distance further on, where the river takes a sharp turn to the eastward towards Dilâree Here the precipices on the northern bank were composed of mica slate overlaid by a rock, the rounded outlines and bare ruggedness of which indicated granite About a mile beyond Dilâree the line of junction changes from the horizontal to the vertical Both rocks may be traced in contact for several hundred feet upwards, but the slate does not appear to have been at all disturbed by contiguity of the granite The dip is here, as it has been throughout the whole of our journey, between N and E , with little or no variation We met with granite further on, all the way to Gungotree—granite often having mica rarely, and acicular crystals of black schorl abundantly imbedded Yet, besides the ridge of snowy "aiguilles," which runs three or four miles to the south of us, and peers everywhere above the intermediate rocks, another similar one is seen to the north of us, which meets the first at an acute angle, a short distance beyond the temple at Gungotree Both these ridges, from their peculiar outlines, must be

of mica slate, or gneiss We find too on our way masses of slate several feet accross lying in the granite, and pieces again of the size of a brick, as if they had been imbedded in it in a state of semifusion, so as to form an irregular gneiss. But these appearances are only partial. This granite appears to range in nearly an east and west line. We have crossed three different masses of trap on our journey, besides the diallage rock, I mentioned, to the west of Mussooree, viz one on the ridge before descending into the valley of the Ganges, and two others in the clay-slate, and talc slate We could not, in either case, trace their connection with the surrounding rock but we probably crossed them at nearly a right angle, and, if so, their ranges must approach to a parallel with that of the granite. They had all the characters of a common greenstone From Gungotree to Dilâree, the river runs through a gloomy chasm in the granite, the branch from Gungotree has rather a dingy hue, but the northern one called the Melung, that comes from Tartary, is, indeed, a beautiful water—as blue as the Rhone when it issues from the lake of Geneva As the stream becomes larger below Sookee, it is a grand and singular object—with a body of water as great as that at the falls of Schaffhausen, perhaps much greater, it preserved the appearance of a mountain brook during the whole of the time we saw it There is no perpendicular fall, but the slope is so great that it tumbles and foams over the rocks for the entire distance

To recapitulate the rocks observed in the order of succession, they are—1, granite, 2, gneiss and mica slate, 3, talcose gneiss and talc-slate, 4, clay-slate, 5, Mussooree limestone, 6, quartz-rock, or rather quartzy-sandstone, and grey wacke slate.

The relative position of these two last, however, needs farther investigation, for there are undoubtedly seams of quartzy sandstone alternating with the Mussooree formation, one in particular, several feet in thickness, may be observed near the bottom of the hill, just above the village of Rájpoor

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V —*Note on the Fossil Camel of the Sub-Himálayas* *By Lieut* W E Baker, *Engineers*

With reference to a doubt expressed in your Journal for September, the specimens of "Camelidæ" now in our possession, will, I hope, be sufficient to establish the existence of that genus in the fossil state

They are . A cranium, with portions of both rows of upper molars, shewing also the occipital and parietal bones, so peculiar in the camel.

A fragment of upper jaw with molars

Two fragments of lower jaw with molars

The upper and lower extremities of a metacarpal bone (the central piece wanting).

The lower extremity of a radius

In the above specimens, I have been unable to detect any point of difference from the camel of the country, with which also they appear to correspond in size The cranium, however, has not yet been cleared from the matrix, which *may* conceal some distinctive mark.

The existence of fossil *Capridæ*, (in which I include antelopes,) is established by numerous specimens of teeth and jaws, and several heads, more or less perfect, these, with the *Cervidæ* and *Bos*, nearly complete the *known* varieties of ruminant of the larger unknown genera we have yet much to learn.

I have lately seen a nearly perfect fore-leg (consisting of the humerus, radius, cubitus, carpus, metacarpus, and one phalanx), of a ruminant which must have united the height of the camel with the proportions of the bos, judging from the great excess in length of radius compared with that of the humerus and metacarpal bone. Of a similar animal we possess chains of vertebræ, cervical and lumbar, at present buried in matrix, should their clearance determine any interesting point, I shall not fail to communicate it

Of rhinoceros remains, we have now a plentiful and most interesting collection, comprising, besides teeth, heads, &c., more numerous perfect bones than of any other animal

Our latest acquisitions are teeth and jaws of the porcupine and rat, several fragments of *fish* with their *scales beautifully* perfect, and a small species of felis about the size of the jungle cat.

P S. Your fig 19, Pl XXXIII. vol iv appears to me the upper articulating surface of an axis of horse or camel, whether the former or latter might be judged by the size

I make this guess, from the appearance of the angle with which the pivot rises out of the flat articulating surface.

In the bullock, antelopes, goat, sheep, and stag, the rise is nearly perpendicular in the horse or camel, it has a concave shape. Fig 19, is apparently much interwoven, the axis which I have supposed may belong to the elk*, is not in its proportions similar to the corresponding bone of the camel, but belongs to an animal with a shorter and thicker neck.

* See plate XLIV. and page 506

VI.—*Examination of a Mineral Exudation from Ghazní.* By H. PIDDINGTON, *Esq.*

[Among the specimens of minerals and drugs received from SYED KERA'MAT ALI, and collected by him while on Government employ in *Cábul*, as noticed in the Proceedings of the Asiatic Society, 7th October, 1835, a bottle containing a mineral exudation from Ghazní excited attention; it was labelled by Lieutenant CONOLLY,

"*Rock Chetny which, according to the Syed's informant, oozes out of a fissure in a rock at Ghizni. Native appellation Mumia? A. C.*"

Having placed this in Mr. PIDDINGTON's hands for chemical analysis, we now hasten to publish the account he has been so kind as to draw up of the results of his examination.—ED.]

I.—*Description.* An unctious, viscid mass, semi-transparent, of a dirty light-brown colour, interspersed with small dark-brown and black specks, and mixed with angular fragments of calcareous rock, varying from the size of a lentil to that of a horse-bean.

The smell faint and sickly, and very peculiar. The taste pungent; when diluted with water sickly.

II.—*Tests.* 1. Solution in cold distilled water is turbid and clogs the filter; does not affect litmus or turmeric papers.

2. When boiled the same. The residue contained calcareous stones with a little siliceous matter, and a coarse bran-like powder, which when freed from the calcareous matter by dilute muriatic acid, proved to be the remains of half decomposed dung, evidently, by comparison with fresh dung, that of birds, and probably of pigeons or bats, &c. I recognised in it minute fragments of straw, pith, shells of seeds, &c. The brown and black specks were minute seeds, quite perfect, or fragments of a carbonaceous looking crust.

3. Boiled in highly rectified alcohol, silky crystals were left in the mass, which was now tough and pasty: these crystals were nitrate of soda. The alcohol evaporated was found to yield nearly pure nitrate of lime, mixed with a little fatty and very fœtid animal matter.

4. The solutions were tested by—

Oxalate of ammonia, giving plentiful precipitate.		Lime.
Muriate of barytes, nitrate of silver,	slight cloud	Trace of sulphates and muriates.
Sulphuric acid to concentrated solution,	nearly solidified it, and evolved fumes of nitric acid.	Nitric acid
Gold leaf boiled in solution, with a little muriatic acid added,	dissolved	Nitric acid
Muriate of platina,	no effect.	No potass.
Tincture of galls	no effect.	No iron.
Nitro-muriate of gold, Deuto-chloride mercury,	no effect.	No albumen.
Tannin,	no effect	No gelatine.

To the chemist some of this may look superfluous, but I was always suspicious (and thought the fact worth ascertaining), that this singular looking compound might be artificial

On platina foil, before the blow-pipe, it tumifies with strong effervescence, blackens, decrepitates with minute sparks, and passes into a whitish mass The platina scarcely affected

The bran-like matter left from the aqueous and muriatic solution, No. 2, was heated in a tube in which litmus and turmeric papers with a bit of silver foil were so disposed, that the vapour from the assay would pass over them When heated, a strong ammoniacal (burnt feather) smell was evolved, followed by a sickly odour like that of turf, or tan refuse The upper part of the tube was browned as from turf smoke. The silver foil and test papers were no way affected, proving the absence of sulphur or matters affording ammonia in this residuum.

Analysis

In a compound necessarily so variable, little more satisfaction was to be expected from an analysis than the test afforded, saving that of being convinced that nothing had been overlooked, 400 grains of it gave

By alcohol and water,	Nitrate of lime, with a little fatty animal matter, . .	162·5
	Nitrate of soda, .	23 5
By muriatic acid,	Carbonate of lime, from the rocky fragments,	136 5
	Water by an independent experiment,	62 0
	Residuum of dung of birds, with a very little siliceous matter and sulphate of lime, . .	9 5
		394 0
	Loss,	6 0
		400

Assuming the information on the label to be correct, we may suppose that the fissure from which this "rock Chetny" oozes communicates with some limestone cavern frequented by birds, (or in which are large deposits of animal matter,) from which or from the decomposition of the dung, as in many similar situations, the nitrates of lime and soda are formed and gradually ooze out The presence of the vegetable remains and the absence of all traces of bitumen or sulphur, quite exclude the idea of its being "*Mumia*," as suggested on the label I have somewhere seen it mentioned, that a nitre cave, as they are commonly called (I think in Kentucky), produces a matter assuming this unctuous, but not the viscid, state, but cannot now recollect the work.

VII —*Corrected Character of the Genus Cuvieria of* Rang, *and notice of a second species inhabiting the Tropical Indian Ocean By* W H Benson, *Esq B C S.*

In my catalogue of Pelagian shells, vol iv. p. 176, I mentioned that the capture of perfect specimens of the Pteropodous genus *Cuvieria* would enable me to correct the characters given by Rang, in his Manuel, from shells met with in the imperfect state in which they are usually found I now redeem the promise implied in that communication The following is the corrected character

Cuvieria (Rang) Testâ symmetricâ, anticè subcylindriceâ, posticè elongato conicâ, apice acutissimo, medio septo tenui, imperforato, concavo, versus apicem convexo, concameratâ, aperturâ suprà depressâ, subcordiformi

Rang gives as a character " le côté opposé à l'ouverture ferme par un diaphragme convexe à l'extérieur, non terminal, étant débordé par les parois du cylindre," and this is the general appearance of the shell, which in the numerous specimens captured by us, was, with the exception of two individuals belonging to the smaller species hereafter described, defective in the conical termination One of these two, taken in my tow-net, I broke on extracting the animal, the other, which was secured by Lieut Hatton, H M. 62nd regiment, was kindly presented to me by him.

The ordinary condition of *Cuvieria* appears to be analogous to the truncation observable in *Bulimus decollatus*, and in some of the *Melaniæ*, in which the part excluded by a diaphragm is liable, from the loss of vascular connexion with the inhabited part of the shell, to become brittle and deciduous.

The larger species, *C columnella* of Rang, the only recent one hitherto observed, is that which is most widely distributed, and was met with by us in the Southern Atlantic, as well as in the Southern Indian Ocean The range of the smaller species, which differs in being about half the length of the other, and in being somewhat more depressed, and more ventricose laterally, appears to be more confined. I shall describe it from its resemblance, in its ordinary mutilated state, to a grain of rice, as

C Oryza Testâ lævi, intidâ, depresso cylindrica, lateribus versùs septum ventricosioribus, apice elongato, peracuto

Length $\frac{4}{10}$ of an inch, of which the spire occupies nearly one-half. Taken, from the 15th December, 1834, to the 1st January, 1835, in a tract of the Tropical Indian Ocean contained between the parallels of 8° 6′ south and 5° 0′ north, and between the meridians of 86° 38′ and 91° 0′ east from London.

VIII.—*Synopsis of the Vespertilionidæ of Nipal.* By B. H. Hodgson, *Esq. Resident at Kathmandú.*

I have the pleasure to forward to you herewith the names and characters, which I have provisionally affixed to the *Vespertilionidæ* of the central region of Nipal. Without access to large museums and libraries, it is scarcely necessary to observe that the naming and defining of species can be but very imperfectly performed.

Rhinolphus.

* Prosthem. memb. sup. transversa adpressa. Sinu frontali.

Rh. armiger, mihi. Bright brown, with darker membranes. Frontal sinus round, and furnished with a pencil of hairs. Nasal appendage very large quadrate, adpressed, skinny in the lower part, fleshy in the upper, shaped like a coat of arms, with double field, the superior and inferior fields separated by two parallel, subtrilobate ridges, whereof the upper is fleshy like the proximate field. The lips with a triple fold of skin on each side. The antitragus vaguely developed, and wavily emarginated. Snout to rump, $4\frac{1}{2}$ inches, tail $2\frac{1}{4}$, expanse, 22, weight 3 oz. Females and young males, of a duller, deeper-toned brown.

* Prosthem. memb. sup. erecta haud sinu frontali.

Rhinolphus tragatus, mihi. Uniform deep brown, with the lips paler and rusty. Of the nasal appendage, the upper salient process is like a barred spear-head (♀), and the lower like a raised door-knocker. Antitragus considerably developed, so as to form a semicircular mock† oreillon, whence the trivial name. Lips simple, $2\frac{5}{8}$ inches in length, the tail $1\frac{7}{8}$, expanse, $15\frac{1}{2}$, weight 2 oz.

Remarks.—Both the above species have the pubic teats strikingly developed. In form they are just the same as the true or pectoral teats, and in size, even larger than the latter. At their bases is a distinct indication of a gland, under the outer coat of the animals. The ears of both species are 'tremblingly alive all over,' and capable of considerable movement and compression, whence perhaps the transverse striæ or rays by which they are distinguished. In both species, there is some appearance of tragal and antitragal development. In tragatus (rectè anti-tragatus), the latter is prominent. These animals have manners nearly similar to those of the true Vespertilios. So soon as it is dark, they come forth from the cavities of rocks, in groups, to skim the surface of standing crops, or to glide around and between umbrageous trees, in search of nocturnal insects, which

† N. B.—The *true* oreillon, peculiar to Vespertilio, is an enlargement of the tragus.

constitute their sole food They make their exit rather sooner than the true bats, and always in considerable numbers They are not migratory, nor subject to hibernation. They breed once a year, towards the close of summer, and produce two young, differing from the parents chiefly in the very restricted development of the nasal appendages

PTEROPUS

* Ecaudatæ

Pt leucocephalus, mihi Whole head and neck, with the body below, rufous yellow, face, as far as the eyes, the body above, and the membranes, deep brown Snout to rump, 10 inches Expanse, 46. Weight, 22 oz.

* Caudatæ

Pt pyrivorus, mihi Wholly of an earthy brown, nude skin of lips, of joints, and of toes, fleshy gray, tail very short, with its base enveloped in the interfemoral membrane, and its tip free Snout to rump, six inches, tail, half an inch Expanse, 24 inches Weight, 5 oz

Remarks —The Pteropi never appear in the central region of Nipal, save in autumn, when they come in large bodies, to plunder the ripe fruit in gardens The lesser species is a perfect pest, from the havoc it makes amongst the ripe pears Hence I have called it pyrivorus These animals are never seen in Central Nipal, save at midnight, at which time they come to feed, and necessarily from a very considerable distance In the plains it is noted of them, that they will travel 30 or 40 miles, and as many back, in the course of a single night, in order to procure food

VESPERTILIO.

V formosa, mihi Entirely of a bright, soft, ruddy yellow, with the digital membranes triangularly indented, blackish Head, conical, face, sharp, muzzle and lips, confluently nudish, the former, anteally grooved, not above, outer and inner ears acutely pointed, moderate, less the head, teeth $\frac{22}{6}$ $\frac{11}{11}$ $\frac{66}{66}$ snout to rump, $2\frac{1}{2}$ inches, tail, 2, expanse, $12\frac{1}{2}$.

V fuliginosa, mihi Wholly sooty brown. Ears, lips, and muzzle, as in the last and face sharp, but the rostrum somewhat recurved, owing to the concave bend of the nasal bones, which in *formosa* are rather convex. Teeth $\frac{22}{6}$ $\frac{11}{11}$ $\frac{55}{66}$ In size somewhat less than *formosa*.

V labiata Thick-lipped Bat, mihi Head broad and depressed, with a bluff physiognomy, and all the organs placed low down on the sides of the head, muzzle, small, clearly defined, rounded, grooved; lips very tumid, but not warty nor nude, ears shorter than the head,

remote, erect, spheroidal: auricle of the same form, and directed towards the conch of ear; posterior margin of the helix folded outwards, and carried forwards to the gape

Saturate brown throughout. Skin, wherever denuded, purpurescent Teeth $\frac{22}{6}\frac{11}{11}\frac{66}{66}$, snout to rump, three inches, tail, two, expanse 15.

Remarks —The bats remain with us throughout the year, and do not hibernate They quest for food solitarily, and therein chiefly their manners differ from those of the Rhinolphi Labiata is closely affined to M Geoffroy's Noctula, and has a very different physiognomy from the other two species, which have both a sharp visage, though their crania exhibit in the facial part a considerable diversity, In Formosa, the nasal bones are slightly convexed in their length, and unite easily with a low forehead. in Fuliginosa, the same bones incline to a concave bend in their length, and join a high forehead, with a considerable curve

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IX —*Note on the Red-billed Erolia* *By the same.*

With reference to the paper on the Red-billed Erolia, published in your No for August, I beg to acquaint you that I have been induced to adopt a new genus for this bird, and that the change of the generic has led me to the alteration of the specific name also. As I am no friend to the multiplication of names, I would observe, that in adopting a new genus, I have been governed by these two circumstances—1st, that Viellot's genus Erolia has been rejected, 2nd, that Gould's genus Ibidorhyncha is inaccurate I have had opportunity to examine three specimens, and from careful comparison of them, have drawn the following generic character.

Genus Clorhynchus

Rostrum omnino Numeniacum differt tamen tomiis inflexis denticulatisque, necnon apicibus acutiusculis.

Corporis, alarum caudæque forma sicut in Grallatoribus typicis

Tibiæ et tarsi sub-breves, tibiæ trans medium plumosæ, teres tarsi leviter reticulati

Pedes tridactyli typicè cursorii, marginibus tamen digitorum subdilatatis, exterioque digito libero

Species nova *Cl Strophiatus*, Anglicè *Gorgeted Clorhynx.*

Cl. corpore supra, colloque plumbeis Caudâ pallidiore, fasciisque nigris transversim instructa Corpore subtus albo Capitis vertice, facie guttureque nigris Pectore strophio nigro ornato. Iridibus rostroque sanguineis. Pedibus purpurescente griseis.

Synonyma. *Red-billed Erolia* of Asiatic Journal *Ibidorhyncha Struthersii* of Gould's Century.

The denticulation of the bill, and the strictly cursorial character of the feet, (with short, stout, very unequal, full, solid toes, and depressed truncated nails,) constitute, I conceive, *the* marks of this genus

The species is 16 inches by 30 in length and extent, and 10 oz. heavy

The intestines are 20 inches long, larger above than below, tough, frequently semi-convolved or doubled, syphonwise, and at three inches from the anal end, they have two cæca, nearly two inches in length, each of them

The stomach is small, but very muscular and gizzard-like, and the food of the species, chiefly, minute univalve mollusca, which it picks up on the sandy margins of rivers and streams In such sites it is usually found, nor does it appear to be gregarious

The generic name Clorhynchus, is derived from Clorios, a Greek term for the curlew The trivial name bears reference to the conspicuous gorget borne on the bird's breast Had the former specific name (red-billed) been retained, there must have been tautological intrusion on the generic style, upon turning the specific appellation into Latin or Greek hence the change

Time and the discovery of more species will prove whether my generic character be worthy of retention Quoad the single known species it is, I hope, both accurate and distinctive

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X.—*Description of the little Musteline animal, denominated Káthiah Nyúl in the Catalogue of the Nepálese Mammalia By* B. H. Hodgson, *Esq Resident at Katmandu.*

Genus —Mustela.

Sub-genus —*Putorices*

Species new *P Káthiah*, mihi The *Káthiah Nyúl* of Nepal Habitat, the Kachár or Northern region Specific character, deep rich brown above, golden yellow below, chin whitish. Tail, limbs, and ears concolorous, with the body above Tail cylindrico-tapered, and half the length of the animal Snout to rump, 10 inches tail (less hair) 5 inches.

This beautiful little creature is exceedingly prized by the Nepálese for its services in ridding houses of rats It is easily tamed, and such is the dread of it common to all murine animals, that not one will approach a house wherein it is domiciled. Rats and mice seem to have an instinctive sense of its hostility to them, so much so that

as soon as it is introduced into a house, they are observed to hurry away in all directions, being apprised, no doubt, of its presence by the peculiar odour it emits Its ferocity and courage are made subservient to the amusement of the rich, who train it to attack large fowls, geese, and even goats and sheep. The latter, equally with the former, fall certain sacrifices to its agility and daringness * So soon as it is loosed, it rushes up the fowl's tail, or goat's leg, and seizes the great artery of the neck, nor ever quits its hold till the victim sinks under exhaustion from loss of blood

The Káthiah has the true vermiform structure of the typical musteline animals, its head, neck and body forming a continuous equable cylinder. Its action is purely digitigrade, and even the palms and soles of its extremities are clad in hair beyond the limits of the lines defining the digits, and the balls supporting them and the wrists. The fore and hind legs are of equal and moderate thickness, but the hands are rather larger than the feet. both quinquidactylous, with the thumbs or internal digits a little withdrawn, as in the human hand Of the rest of the digits, the two central are equal, and the two lateral, sub-equal, especially in the hinder extremities Four oblong conjunct balls support the bases of the digits, and two the palms, an outer large ball of an elliptic shape, and a tiny round one its inner side No metatarsal balls exist in the hind feet The digits are more than half involved in a dilatable membrane which spreads freely to aid grasping The talons or nails are all of sub-equal size, compressed, curved, and acute, suited to scansion and tearing, but not so well to digging The fur is short, shining, and adpressed, that of the tail being a little larger, but not much so The tail itself (i e exclusive of the hair which projects beyond its termination) is just half the length of the animal, and is slender, round and tapering. The head oval, with a short conical face ending in a clearly-defined round muzzle, having the nostrils entirely to the sides. The eyes are prominent, with round pupils, and they are seated much nearer the snout than the ears The hairs issuing from the lips, cheeks, chin, and brows, are not rigid or thick, and a slight tuft of a similar character is set on above each carpus, as in some of the squirrels. The ears are lateral, transversely developed, formed upon the general model of the human ear, and more nearly of that of the mungooses There is helix and antihelix, tragus and antitragus, but no lobe Those who are familiar with the structure of the ears in the common Indian mungoose (*Herpestes Griseus*) will understand the exact form of the same organs in our animal, when I tell them that the only differences consist in the helix of the latter being more exserted, but not pro-

duced anteally towards the eves, nor reflected on the edge. The helix too, is entire in the mungoose, whereas in the Káthiah weasel, it has a large simple fissure in the posterior part, resembling that of *Martes Flavigula* The front teeth stand free of the canines in the upper jaw, in contact with them in the lower, wherein the intermediate ones are ranged rather within the line of the rest of the teeth Molars, $\frac{4}{4}$ $\frac{4}{4}$. The great carnivorous tooth in the upper jaw has a small flat-ish heel on the internal side, placed forwards, and at the base of great cutting process The same tooth in the lower jaw has no transverse or lateral process, but the third longitudinal tubercle is nearly flattened on its crown, and the hindmost or fifth tooth in this jaw is small, and nearly flat-topped The hindmost or fourth molar of the upper jaw runs transversely, and has two obtusely-conical points

A horrible offensive, yellowish grey fluid exudes from two openings, placed laterally just within the sphincter ani The scrotum is nearly without hair, and not larger (including the testes) than a marrow-fat pea The omentum as delicate as a spider's web, and without a particle of fat

The liver divided into six lobes A small pea-like gall-bladder is deeply imbedded in the largest lobe The stomach is nearly pyriform, and purely membranous, the œsophagus entering it close to the fundus Length of stomach, $3\frac{1}{4}$ inches, greatest diameter, $1\frac{1}{2}$ inch. Spleen, $1\frac{3}{4}$ inch long, $\frac{1}{8}$th of an inch in diameter. Coats of stomach thin, almost transparent, Entire length of intestinal canal, four feet, of uniform calibre, from the pylorus to the vent No cæcum Length of animal from snout to vent, 10 inches. This gives less than five times the length of body to the intestines Lungs, six lobes, four right, two left

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XI —*Further Discovery of Coal Beds in Assam. By Captain* F. Jenkins.

[Extract of a letter, dated Goalparah, 5th December, 1835]

I wrote you sometime back that we had fallen upon a shell limestone in the *Nowgong* district, similar in all respects to that of Sylhet, there was every reason, therefore, to suppose, that we should find coal associated with the limestone, as to the south of the *Khasia* hills, and I have just now the satisfaction to report that this has been realized, and to send you small samples of coal that has been sent down to me by Ensign Brodie. If I am not mistaken from the appearance, it will turn out to be a valuable and highly bituminous coal, and I shall be much obliged by your reporting upon it. A large

supply of it has been brought down for me to *Gowahatti*, from which, on my return, I will dispatch a good quantity to you • Of course what we have now to show are merely chance pieces, brought in by persons we put in search, and many of them are slaty and earthy; but what I send you, is sufficient, I hope, to show that there are good coal beds connected with these I do not exactly know the site of this deposit; but I believe it has the advantage of being within reach of navigable nullahs, it is on a nullah falling into the *Jumuna*, a river which divides *Cachar* from Assam, and joins the *Kopili*, the *Kalung*, (a branch of the *Brahmaputra*,) and other streams entering the *Brahmaputra*, a little above *Gowahatti* This will be a most convenient site whence to draw supplies of coals, if the quality turns out suitable for steamers, whenever there be occasion for sending any in this direction It now becomes almost certain that we shall find very large supplies of this invaluable mineral on the south bank of the *Brahmaputra*, we know already of four places where coal has been found, viz 1st, under the Caribári hills, 2nd, that of the Dharmpur Pergunnah, 3rd, on the Suffry, a nullah near the Borhat salt formation, and 4th, on the Noa Dihing, in the Singpho district, south of Sadiya • We may besides of course confidently expect to find coal on many intermediate spots, when we come to be better acquainted with the province

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NOTE —The three specimens of Assamese coal, received with the above note, turn out to be of very respectable quality, they are rather slaty in fracture, and do not coke, but burn with a rich flame, being very bituminous on this account they would be very suitable for steam engine fires, though unfit for the forge, or for the smelting furnaces Analysed in the usual way, they yielded the following ingredients.

	No 1	*No* 2.	*No* 3.
Volatile matter, expelled by coking process, ..	63 1	56 9	62 8
Carbon, ascertained by incineration of coke,	29 6	31 1	29 0
Earthy residue, ...	7 3	12 0	8.2
	100 0	100.0	100.0

The weight of the three coals gives a somewhat different result, No. 2, being the lightest, and consequently the least earthy, of the three.

viz. No. 1 has a specific gravity, ... 1 226
2, ... 1.196
3, ... 1.223

J. P.

XII.—*Synopsis of Fossil Genera and Species from the upper deposits of the tertiary strata of the Siválik Hills, in the collection of the authors. By Capt.* P. T CAUTLEY, *Supt Doáb Canal, and* H FALCONER, *M D. Supt. Botanical Garden, Seháranpúr. Northern Doáb, Nov* 15*th*, 1835.

I PACHYDERMÁTA

1. Elephas
   1 *E. Primigenius*
2. Mastodon.
   1 *M Elephantoides** { M. Latidens Clift / M Elephantoides Clift.
   2. *M. Angustidens.*
3 Hippopotamus.
   1 *H Sivalensis* (Nob)
   2. *H dissimilis.* (Nob)
4. Rhinoceros.
   1 *R angustirictus* (Nob)
   2. (undetermined)
5. Equus.
   1 *E Sivalensis* (Nob.)
6. Porcus. (Species undetermined)
7 Anoplotherium
   1. *A posterogenium* (Nob.)
8 Anthracotherium
   1 *A Silestrense ?* (Pentld.)
9. Chœrotherium (Nob)
   1. *C. Sivalense* (Nob.)

II RUMINANTIA.

10. Sivatherium (Nob)
   1. S. *Giganteum* (Nob)
11 Camelus (Species undetermined . two undoubted)
12 Cervus (Species undetermined numerous)
13. Antilope (Species undetermined numerous)
14. Bos. (Spec undetermined 1 new sect in the genus.)
   Indications in teeth, &c. of other genera.

III. RODENTIA.

15. Hystrix.
   1. (Spec undeterd)
16 Mus. (Spec undeterd) } Dádupúr collection : vide CAUTLEY's letter, Jour. A S Oct 1835 , p. 586.

* We consider the *M. Latidens*, and *M. Elephantoides* of Clift (Transactions of the Geological Society,) to be varieties merely of one species, dependent on age and sex —C and F.

IV CARNIVORA

17. Felis (Spec. large No and character undetermined)
18. Canis (Species undetermined)
19 Hyæna. (Species undetermined)
20 Amyxodon (Nob)
1 *A Sivalensis* (Nob)
Indications of other genera.

V. REPTILIA.

21 Crocodilus.
C. Biforcatus ?
22 Gavial
G Gangetica ?
23 Emys (Several species undetermined)
24 (Trionyx (Several species undetermined)

VI PISCES (Heads, vertebræ, &c of unknown fishes)

VII TESTACEA (Univalves and bivalves undetermined)

XIII —*Note on the Asurhár of the Rajmahal Hills* (*By Capt* H TANNER.

[The following letter has reference to an extract from BUCHANAN's geological account of the Rájmahal hills, to which the Editor drew attention on the cover of the May number of the Journal, in consequence of a report having reached him that fossil bones had been discovered in the same range of hills towards Burdwán. This present information removes any hopes of meeting with the expected fossils, and may save the trouble of further search , for reference sake, the passage is here reprinted

"The other calcareous matter, in mass, is called *asurhár*, or giant's bones. The greatest quantity is found at a place, in the centre of the hills, called *asurni*, or the Female Giant As the lime, produced from this substance, is whiter and better than that made from the nodules, a great part has been removed It occupied a space, on the surface of the declivity of a hill, about 40 or 50 yards in length , and from the bottom of the hill, extended upwards, from ten to forty yards, and seems to have formed a crust from 2 to 3 feet thick, covered by a thin soil, filled with loose masses of stone It has evidently been fluid, or at least gradually deposited from water, as it has involved many fragments of stone, some earthy matter, and a few univalve shells, of a species with which I am not acquainted, and cannot therefore say, whether they are a marine or land production* The masses of stone that had been involved vary from the size of the head to that of a walnut, and the *asurhár*, or calcareous tufa, does not adhere very firmly to them , so that in breaking, the mass being very hard, these nodules are generally shaken out Near the quarry I saw no rock , but all the fragments involved, and those under the calcareous matter, are of a dark-coloured siliceous matter. In this place I saw appearances that, in some measure, justify the native name , for one piece of the *asurhár* contained what had very much the appearance of a flat bone, with a process projecting at one end. I also observed a curious impression, a semi-cylinder, about three inches in diameter, and 18 inches long, not quite straight, and exposed to view, as if, by breaking the rock, the other half of the cylinder had been removed The surface of the cavity was wrinkled with transverse folds, like the inside of an intestine, but may have possibly been the bark of a tree, although I have seen no bark with such wrinkles , I rather suppose that this has been the impression of some marine animal The greater part of this *asurhár*, as I have said, has been burned by Mr. CHRISTIAN, a Polish merchant of Monghyr, who, I am told, owing

* I have since found these shells in the rivers of Gaya.

to the expense of carriage, did not find it advantageous His overseer gave me a piece of it crystallized, which differs, in some respect, from any calcareous spar that I have seen. I myself found no crystallized matter in any of the *asurhár* This substance is also found close adjoining to the hot sources of the Angjana river, and by the natives has been wrought to a trifling extent It is in a stratum, about a foot thick, lying on loose siliceous stones, to which it adheres, and is covered by about a foot of soil, mixed with stones. So far as I saw, it contained no animal *exuvia*

"On the stones, through which the hot-water issues, both of the sources of the Angjana, and at Bhimbandh, there adheres a tufaceous matter, so like this *asurhár* that I at first sight concluded it to be the same, but on trial, I found that it does not effervesce with the nitric or muriatic acids, and is probably of a siliceous nature"—Ed.]

My attention was first directed to *Asurni* by the Superintendent of Buildings having requested me to search for limestone in the neighbouring hills I heard from natives, that Captain (late General) Garstin had procured lime from that place to build the Government granary at Patna

I proceeded there in November, 1819, and encamped 12 days in the valley.

Natives who had worked for General Garstin, and subsequently for Mr Christian, described the lime rock as a large mass at the foot of the hill, of considerable height, inclining over to the north, so as to afford shelter when it rained, and when it was quarried, they placed fire underneath, to heat the stone, and then poured water from above, to burst it.

I conceived some remains of a stratum might be found, and had a trench excavated some distance along the base of the hills, another intersecting it up the slope, but could only find incrustations on the fragments of siliceous stones, some nodules imbedded in the scanty soil, a few of them crystallized, but all were indiscriminately called *asurhár* by the natives, without reference to form, merely from the porous texture.

I found a superior sort of tufa at various places in the valley, and remarked that each lump formed invariably, as if from percolation, round the roots of the *sal hur* tree, thickest near the tree and thin towards the edges, and in many instances extending along the thin roots, assuming a cylindrical form, but not perfectly round these were also called *asurhár*

The lime from this species of tufa was considered so good, that the Superintendent wished for a large quantity, for the purpose of white-washing, but the cost of transit across the hills was too great.

I availed myself of the "Jellinghí," passing the other day, to send you a sample of actynolite, it is only a few inches long, but generally the pieces are two or three feet long and a foot thick, standing vertically on each other to a great height, presenting a precipice of columns, near to *Asurni*.

XIV —*Extract from a Meteorological Journal kept at Kandy, Island of Ceylon By Captain* Ord, *R E*

Date	Thermometric Range							Rain-guage	
1833 and 1834.	Monthly Range		Greatest Range in 24 hours		Least Range in 24 hours		Mean Temp	Rain fallen	Fallen in 24 hours
Month	Max and Min	Range	Max and Min	Range	Max and Min	Range		In the month Inches.	Max and Min
Nov	81 25 66 5	14 75	80 5 67	13 5	74 5 69·	5 5	72	9 3	1 6 0
Dec	79 5 62 5	17	79 5 62 5	17	72 5 69 5	3	72 3	7·85	1 75 0
Jan	82 59	23	81 59	22	73 5 69 5	4	71 8	7 0	3 8 0
Feb	85 59	26	81 59	22	75 5 70	5 5	73 5	1 75	1·4 0
Mar	88 59	29	88 65	23	81· 71	10	75 5	6 25	1 8 0
Apr	84 5 61	23 5	81 61	20	76 70	6	73·3	6 25	1 95 0
May	85 65	20	83 5 65	18 5	75 5 74	1 5	76 3	2	1 0 0
June	81 69	12	80 70	10	74 71	3	73 8	10	2 0
July	78 5 69	9 5	78 69 5	8 5	73 5 70 5	3	72 7	8 7	1 8 0
Aug	81·5 66	15 5	81 5 66	15 5	73· 70	3	72 3	8 45	2 8 0
Sept	82 5 66 5	16	81 5 68 5	13	75 5 69 5	6·	73 1	4 0	8 0
Oct	85 63 5	21 5	85 64 5	20 5	75 70	5	72 7	7 1	0 9 0

N B Highest range in the shade, 88°. Lowest, 59°. Mean Temp. of the year—73 3 Total quantity of Rain—inches, 78 6

Remarks —Kandy is situated in a mountainous district, in Lat N 7°18′,—Long 80°49′, and at an elevation of about 1680 ft above the level of the sea. It is so surrounded by high hills, as to render both the direction and force of the wind very difficult to be obtained—but it is strongly affected by both monsoons.

XV —*Postscript to the Account of the Wild Goat of Nipál, printed in the September No of the Journal, page* 490 *By* B H Hodgson, *Esq*

Carefully as I thought my account of the wild goat of Nipál, recently published by you, was executed, I find that there is one material error in it, viz the statement that the species has only two teats or mammæ A recent dissection of a fine male led to the notice of the fact, that there are four teats, which fact was confirmed by the examination of two live females There can, therefore, be no question that this species of goat has four teats and the circumstance is so remarkable, that I propose to substitute the name Quadrimammis, or four-teated, for the popular name of Jhâral under which I described it Deer are distinguished by four teats, goats and sheep, heretofore, by two; the intermediate genus, antelope, by four or two, in the several species *Capra Quadrimammis vel Jharal*, by its four teats, offers a singular and unique approximation (in this genus) to *cervus;* and another proof that the infinite variety of nature cannot be designated by our artificial signs and peremptory divisions *Antilope, capra,* and *ovis*, how shall we contradistinguish them? solid cored horns, in the first, is no unerring mark and now we have a species of the second, and a *beardless* species too, abandoning his congeners to tally himself with cervus—quoad, the number of mammæ

XVI —*Analysis of Raw Silk By Mr* J W Laidlay

A A hundred grains of yellow raw silk were digested in moderately strong alcohol, which soon assumed a fine orange tint At the end of some days, much colour remaining unremoved, heat was applied, and the solution gently boiled The alcohol was then decanted, and successive portions of the same solvent were employed, till the silk appeared perfectly decolorized The solutions were then reduced to a moderate compass by distillation, and on cooling deposited a feeble cloudy precipitate, which subsided slowly. The clear fluid being decanted, and evaporated at a gentle heat to dryness, left a deep orange brown mass, which weighed 0 9 grains This substance was adhesive, fusible, scarcely, if at all, soluble in water, but readily so in alcohol, to which in small proportions it communicated a fine orange tint. A concentrated solution deposits on cooling a vast number of minute shining crystals, which subside to the bottom in the form of a brilliant orange-brown powder When this precipita-

tion has ceased, the solution lets fall, by spontaneous evaporation, a few filamentous bunches of a white colour, and apparently fatty nature, but in quantity too small for more particular examination

B The flocculent precipitate above mentioned, being collected and dried, weighed 0 1. It had the consistency, fusibility, and other sensible properties of wax

C The silk, still perfectly elastic, was now transferred to a deep silver vessel, and boiled with successive portions of distilled water as long as any sensible action was produced A colourless, opalescent solution was obtained It was frothy and viscid, and exhibited scarce any tendency to deposit the particles it held in suspension. A solution of bi-chloride of mercury, cautiously dropped from a graduated tube, threw down a bulky coagulum, which after boiling, became much condensed, and permitted the easy decantation of the clear fluid This precipitate, well washed and dried, weighed (deducting 1 4 grains, the amount of metallic salt employed), 8 9 grains It had all the well known characteristics of albumen

D. The clear fluid decanted in process C being evaporated to dryness in a steam bath, left a nearly colourless, transparent, brittle mass, resembling gum It weighed 13 0 grains, and had a tendency to soften, from the presence of a small quantity of deliquescent salts. It dissolved readily in water, from which neither the bi-chloride nor tan threw it down It exhibited no tendency to gelatinize, however concentrated, and was copiously precipitated by sub-acetate of lead

E Alcohol now took but a feeble tinge from the silk, which still retained a little harshness A very dilute solution of caustic potash was accordingly exhibited, and after a few hours digestion, was poured off, exactly neutralized with muriatic acid, and treated with the bi-chloride as in process C The precipitate of albumen thus obtained weighed 0·4 grains

F. Finally, the silky fibre, which had now attained its full lustre and flexibility, weighed 76 5, exhibiting a loss of 0 6 upon the total, attributable to hygrometric moisture, the whole of the products being dried at a steam heat immediately before weighment. The following are the results of the analysis

A.	Resinous colouring matter, and white filamentous substance, ..	0·9
B	Wax,.	0 1
C and E	Albumen, ...	8 9
D	Mucus,.	13 0
F	Bleached fibre, ...	76 5
F	Hygrometric moisture, ...	0 6
	Grains,	100 0

An analysis of white silk gave identical products; and in amount differing only fractionally from the above, except in the particular of the resinous colouring matter, which was indeed present, but in a very much smaller proportion. It is probable that the varieties of colour observable in cocoons, the yellow, the orange, the buff, the white and the greenish hues, depend only upon the greater or less amount of this resin in the fibre

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XVII.—Extracts from Correspondence

1. *Note regarding the Bhilsa Monument. By Dr* Spilsbury.

With respect to the Bhilsa monument, I see Mr Hodgson also agrees in thinking it similar to the Manikyála tope, and which I have been at you so long about, and for which reason I sent you a selected drawing. With regard to apartments within, none exist. When Mr Maddock was Political Agent at Bhopal, he obtained leave from that Government to dig into it, and I visited it soon after, (in December, 1822,) when Captain Johnson, his Assistant, had completely opened it from the top to I think about 30 feet below the level, and to what he considered, the bottom of the foundations, and found the whole solid brick-work, without any appearance of recess or open space of any kind. Fell should have stated that the gate-ways are four, three of which are standing, the fourth having been thrown down by an earthquake, the whole of which is strewed on the ground, and that in no long time, another will follow. It would be well worth an amateur's while to take copies of the compartments, the sculpture of which is like nothing you see in India. There is another style of sculpture that I have seen from Kallinjer and Adjeegurh down as far south as I have been—some of them magnificent temples and ruins, always indecent, frequently highly obscene—sculpture that I have never remarked in any part of the provinces. To what era does it belong?

2. *Note on the Sárnáth Building, by the Baron Hugel*

Je joins quelques mots à ma lettre pour vous faire quelques remarques sur le Sarnath et le Atala Mosjid à Juanpur.

Le Sarnath, ce Dagoba (ou Dhagoba) des Buddhistes, ce qui par parenthese peut être l'origine du nom Pagoda par l'anagram des syllables, est d'une forme inusitée en Ceylon ou parmi quelques centaines qui j'y ai vu depuis les petits près de Colombo, jusqu'aux immenses d'Anaradjapura, toutes différentes l'une de l'autre, aucune n'a la forme du Sarnath. Tout ceux de Ceylon ont un second batiment sur le premier, mais celui-ci dans son dessein ne forme que l'accessoire, comme la lanterne à la coupole moderne, pendant que le Sarnath a dans son dessein le batiment d'en haut pour objet principal, pour lequel la partie d'en bas n'est que le fondement, la base. ces Dagobas sont toujours batis sur un quarré qui (chez les petits, et le Sarnath est de ce nombre) ne forme que partie d'un plus grand quarré, qui contient l'entrée et une Vihare. ces deux quarrés sont visibles dans les debris du Sarnath.

La relique sur la quelle l'édifice est batie se trouve toujours au niveau du premier quarré, mais pas toujours au milieu. L'Atala Mosjid à Juanpur cet decidemant un ancien Agar, je crôis que c'est le nom, ou maison d'école Buddhu, une de ce genre se trouve à Bijapur, et plusieurs en Ceylon, dont la plus grande et celle mentionnée par Turner dans son Epitome, nommé dans les anciennes cartes de Ceylon, 1000 colonnes. Celle de Juanpur contient 1060 colonnes ou plutôt pilastres détachés, (colonnes quarrées est une fausse dénomination.) J'ai cherché mais en vain de trouver une inscription sur ces colonnes à Juanpur, mais je suis sure qu'une personne avec plus de tems que j'avois moimème finirait par en

trouver une Dans tous les autres édifices à Juanpur se trouvent des fragmens de monumens Buddhistes Quel était l'ancien nom de cette ville ?

3. *Note on the occurrence of the Bauddha Formula*

Turning by accident to the copy of the inscription on an image of Buddha, found along with two urns in the excavations at Sarnath, made in the year 1798, and described by J DUNCAN in the 2nd volume of the Asiatic Researches, I was much pleased to discover the identical sentence "*ye dharmma hétu prabhava, &c*" about which so much discussion has lately taken place, occupying the two bottom lines of the page They are disguised by several very gross errors of the copyist, and it is therefore not surprising that no attempt should have been made by WILFORD, who alludes several times in his essay to the other part of the inscription, or by other Sanscrit scholars, to read it, the lines are thus given

ये धर्म्महेतु प्रभवा हेतुं तेषां तथागतो ह्यवदत्
तेषां च यो निरोधो एवंवादी महा श्रमणः।

By comparing this with the version given in page 137, its real accordance will be at once perceived through the disguise of numerous blunders.—J P

4 *Extracts from a Journal of a Residence, and during several Journeys, in the Province of Behar, in the years* 1831 *to* 1834. *By Mr* J STEPHENSON

Lunar Iris

I had the pleasure of observing this beautiful phenomenon two miles to the east of Singhea in Tirhut, at 5 A M on the 4th of August, 1831 It appeared in the eastern part of the sky, the moon being in her last quarter, and only a few degrees about the western horizon The prismatic colours were distinctly developed, and the arch perfect, though not so intense as those generally seen in the solar iris The radius of the arch appeared also less than the one formed by the sun It remained distinctly visible for the space of 15 minutes, after which it gradually lost its radiancy, and disappeared The morning was cloudy, with light showers of rain, and the temperature 85° of Fahrenheit

I have reason to observe that this phenomenon is not of frequent occurrence, for this is only the second one I have seen during my life-time

Frost Rind, January 16*th*, 1832

The native thatched huts in the village of Singhea in Tirhut were this morning covered white with a frost rind, although the thermometer did not indicate a lower temperature than 46° of Fahrenheit, with light airs of wind from the west

Beautiful Meteor observed near Singhea, Tirhut, April 11*th*, 1832

At four hours 45 minutes A M., and at day-break, observed a meteor in the form of a globular ball of fire, which passed through the air, from west to east, in a horizontal direction, and with a motion moderately rapid Its size appeared to be about a foot in diameter, having a fiery train of the most splendid brilliancy, apparently many yards long It illuminated the country as far as the eye could reach, and remained visible for five seconds, after which it exploded like a rocket throwing off numerous corruscations of intense light, but without any report or noise of any kind Its apparent elevation inconsiderable

Another beautiful Meteor observed at the same village on the 20*th of May*, 1832.

At 6 hours 40 minutes P M a large pear shaped meteor was observed shooting very rapid in a horizontal position, and in a direction from N to S. Nothing could exceed the brilliant mixture of green, tinged with blue colours, exhibited during its rapid progress. It left a luminous train of great length behind, and remained visible about three seconds, then disappeared in the southern horizon, without exhibiting any signs of exploding

Remarkable Phenomenon seen opposite Singhea, in Tirhut, July 15*th*, 1833.

This evening, during a thin shower of rain, I observed on the opposite side of the great river *Gandak*, at the distance of two miles, the phenomenon called by the natives "*Rája Harchand ka Pura*" An aërial city appeared, with its

palaces, temples, houses, spires, columns, &c. forming altogether a very beautiful spectral appearance, which remained visible for the space of 10 minutes, after which, it began to alter its appearance, becoming faint and dilapidated, till it gradually disappeared altogether with the passing shower This phenomenon I do not remember to have ever before seen It seems to differ from what is called the *Fata Morgana* in Italy, and I think, partakes more of the nature of what is called the *French Mirage*, for I observed no reflection on the intervening water, but it was considerably elevated above the west bank of the river, directly above a grove of mango trees, which were not seen during the shower of rain, and I suppose caused this very singular appearance by the refraction, or reflection of the atmospheric air, of different densities, surrounding the grove

Parhelia or Mock Suns, 19th May, 1834

About 5 hours 30 minutes P M, I observed the most singular and beautiful phenomenon I ever beheld A dense black cloud, (cumulus,) of a large size, formed itself to the west of *Singhea* The sun had just retired behind it, when suddenly there appeared on the upper edge of the cloud four *parhelia*, or *mock suns*, exhibiting the most brilliant colours of green, blue, and scarlet, intermingled, which neither pen nor pencil could describe The upper part of the cloud was fringed with *radii*, or small innumerable black rays, shooting upwards with a slow but perceptible motion

To heighten the already beautiful effect, in a few minutes the sun burst through an aperture in the middle of the cloud, with a splendour past description This phenomenon remained visible for the space of ten minutes, when it gradually disappeared, and heavy lightning succeeded, flashing its way towards the south-east

Sand Columns

During my travels in *Behar*, I had frequent occasion to notice this phenomenon on the desert sand-banks of the Ganges The first I ever saw was between *Rajmahal* and *Sickgully*, on the 23rd of November, 1830 Several sand columns formed from twenty to sixty feet high, having a whirling motion similar to a water spout at sea They passed at about half a mile distance, and remained visible for five minutes

Feb 10th, 1833 Observed several sand columns on the large island between *Bar* and *Mowah* The whirling motion was very perceptible, and they rose in a perpendicular column to more than 100 feet They only remained whole a few minutes, when they gave way at the base, and dispersed in a cloud of sand

Feb 25th, 1833 On the sands formed by the confluence of the river Soane with the Ganges, we observed two large sand columns, which reared their heads to a great height in the atmosphere, with an obvious whirling motion The apparent diameter of each seemed to be twelve feet They remained perfect for the space of several minutes, and then gradually dispersed, forming a cloud of sand, which remained visible for a considerable time, till wafted away to the east, by a slight breeze of wind from the west, which just ruffled the surface of the Ganges

These sand columns have not passed unnoticed by the natives, who call them *Bundoah* I was told by a respectable native that instances have been known of people being caught in the whirl, and either killed, or severely hurt by their force I have to notice that on every instance that I have observed this phenomenon, the sky was clear, and not a cloud to be seen

Bruce was one of the first to describe these columns in his travels to discover the source of the Nile That celebrated traveller describes them as tremendous, overwhelming, and destroying whole caravans of men and cattle.

In Burnes' travels, I find mention made of them under the name of whirlwinds "In this neighbourhood (meaning the desert), and more particularly while on the banks of the river, we witnessed a constant succession of whirlwinds, that raised the dust to a great height, and moved over the plain like water-spouts at sea In India, these phenomena are familiarly known by the name of *devils*, where they sometimes unroof a house, but I had not seen them in that country either of such size or frequency as now prevailed in the Turkmán desert. They appeared to rise from gusts of wind, for the air itself was not disturbed, but by the usual north wind that blows steadily in this desert."

I dare not venture an opinion with reference to the cause of this phenomenon; but in all probability it is the same that creates water-spouts at sea However, when a sufficient number of well-described facts are made known, some future Sir ISAAC NEWTON may collect and form a theory from them upon a firm basis, and if this notice contribute but an iota towards it, I am well rewarded.

Mirage seen on the 1 5th Dec 1832, near Jandaha in Tirhut.

A little to the east of *Barbatta Ghât*, on the *Byah Nullah*, is a wide extended plain, without trees or jungle of any kind, nothing of vegetation is to be seen, except a stunted species of grass, which serves to feed numerous herds of cattle, that seem to thrive on this sterile waste patches of saline matter are here and there to be seen white with efflorescence On the above day, I travelled across this plain, and at 3 P M, observed the phenomenon of *Mirage* Every object in sight was rendered five or six times its ordinary size The men and cattle appeared gigantic spectres, stalking about in the distance, a few of them appeared as if walking on *stilts*, while some of the buffaloes' heads seemed larger than their bodies A few were elevated to such a height, that their legs appeared like the trunks of palm trees These distortions continued to change as the objects moved about, to such a degree, that the men and cattle changed their shapes every moment like shadowy spectres A transparent bluish kind of vapour could now and then be seen when stooping down, and looking towards the horizon, and having an undulatory motion, which, I have no doubt, caused this phenomenon It is, however, not common, for my servants, when asked about it, looked grave, and their countenances expressed more of fear than curiosity; while at the same time, they did not like to talk or say any thing on the subject. They, however, stated, that it was something not good, and that '*many people would die after seeing it*'' I could not even prevail on them to stay to witness its disappearance

This plain is bounded on the east by a swampy jhil of considerable extent. Could the blue vapour which I distinctly saw, be what is generally called *Malaria?* If so, I have certainly seen it, though "in a questionable shape," contrary to the opinions of many who deem it impalpable and invisible, at first I attributed the fears of my servants to superstition, but I have subsequently thought that they have reason to fear it, especially if the appearance was really caused by *Malaria*, which is probable, for a great mortality of the people in the neighbouring villages took place in a few days after I had returned from my journey

The Mirage representing water I have so often observed, that I thought it too common to notice

5 *Range of the Barometer and Thermometer at Port Louis in the Mauritius in 1828, by* LISLET GEOFFROY, *Cor. Roy Ac. Sc. of the French Institute, for the 2nd Vol Roy As Soc. Trans*

Month	Barometer				Thermometer				Hygrometer		Rain		Tdr	Wind.
	Max	Med	Min	Var from mean	Max	Med	Min	Var from mean	Max	Min.	Inch	Days.	Days.	
Jan	29 85	29 75	29 65	— 04	89	82	74	+4	96	78 0	2 87	14	6	N N E
Feb	29 74	29 64	29 54	— 15	89	85	81	+7	96 3	78 0	5 00	13	2	N E
March,	29 74	29·34	29 14	— 45	87	84	80	+6	101·0	78 0	13 07	17	3	N E.
April,	29 86	29 46	29 16	— 33	83	77	72	—1	95 0	75 1	6.63	6	4	S.E.ESE.
May,	30 17	29 87	29 77	+ 08	80	76	72	—2	95 0	73 0	0 67	5	1	S. E.
June,	29 87	29 86	29 77	+ 07	80	75	71	—3	94 0	76 0	0 66	7	0	S E. S.
July,	29 98	28 98	28 98	+ 19	77	73	70	—5	94 0	79 0	0 25	6	0	E.
Aug.	29 98	29 98	29 88	+ 19	77	72	68	—6	95 0	77 3	2 13	11	1	S E
Sept	29·97	29 97	29 87	+.18	80	76	73	—2	90 3	78 1	0 27	2	0	S E
Oct.	30 06	29·96	29·96	+ 18	82	77	72	—1	97 3	76 0	0 21	6	0	E.
Nov . .	29 95	29 86	29 86	+ 07	83	79	75	+1	92 3	76 0	1 29	5	2	variable.
Dec	29 90	29 85	29 85	+ 06	86	83	77	+5	92 3	76 0	0 44	12	3	E.
Mean,		29 793				78 2					33·49	104	22	

In adding this to the number of Meteorological abstracts published in our Journal, we have corrected several obvious mistakes in the decimals of the original.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of December, 1835

Day of the Month	Observations at 10 A M: Standard Barometer, at 32°	Wet Barometer, at 32°	Aqueous Tension deduced	Thermometer in air	Diff or M T Depress	Leslie's Diff Hygrom	Hair Hygrometer	Observations at 4 P M: Standard Bar at 32°	Wet Bar at 32°	Aqueous Tension deduced	Thermometer in air	Diff or M T Depress	Leslie's Diff Hygrom	Hair Hygrometer	Register Thermometer Extremes: Cold on roof	Heat in sun	Rain	Wind: Morning	10 A M	4 P M	Weather: Day-light	10 A M	4 P M
1	,049	29,264	0,785	72,1	7,4	6,0	91	,945	,110	0,835	73,7	9,2	8,7	82	54,0	83,5		n	N	NW	clear	fine.	fine.
2	,026	,296	,731	71,0	9,0	7,2	86	,906	,098	,808	73,1	11,8	10,9	78	54,3	80,7		n	n	nw	do	clear	do
3	,040	,347	,693	69,1	8,4	8,6	81	,926	,164	,762	71,4	12,4	11,7	71	53,4	79,2		nw	nw	nw	do	cir cum.	do
4	,087	,394	,693	69,2	8 1	7,6	84	,983	,237	,746	71,0	10,1	9,2	77	49,1	79,5		w	nw	n	do	fine.	cumuli
5	,122	,436	,686	68,9	6,3	6,6	86	,997	,246	,751	71,1	8,0	7,8	82	52,0	81,8		o	nw	nw	do	clear	clear
6	,105				6,6			,990				10,4			53,8	79,2		w	W	nw	do	do	do
7	,076	,366	,710	69,4	5,2	5,0	74	,960	,196	,764	71,4	7,3	6,8	86	54,0	82,8		o	nw	nw	hazy	do	do
8	,074	,364	,710	69,6	6,9	5,9	88	,960	,168	,792	72,5	8,6	8,4	81	55,0	82,6		w	nw	nw	do	do	do
9	,046	,344	,702	69,4	7,1	6,0	88	,934	,166	,768	72,0	8,2	7,7	83	53,2	81,5		o	nw	nw	clear	do	do
10	,046	,336	,710	69,8	7,3	6,7	87	,958	,196	,762	71,7	8,0	7,7	84	53,7	83,2		nw	nw	nw	do	do	do
11	,086	,378	,708	69,7	7,0	6,3	89	,960	,196	,764	71,4	7,6	7,2	85	52,8	84,8		n	n	nw	do	do	do
12	,094	,397	,697	69,1	5,1	4,6	93	,956	,198	,756	71,1	7,9	8,1	81	50,3	84,0		o	n	n	do	do	do
13	,062				4,8			,911				10,3			50,2	85,5		o.	n	n	fog	do	do
14	,042	,339	,703	69,3	5,9	4,6	92	,946	,188	,758	71,3	6,3	5,6	89	52,0	83,8		o	n	n	do	haze	cumuli
15	,047	,298	,749	70,3	5,6	5,1	92	,938	,147	,791	72,0	7,1	6,6	86	53,4	86,2		o	ne.	n	cirri	clear	fine
16	,070	,342	,728	69,7	4,7	4,4	94	,949	,124	,825	73,0	7,6	7,0	86	53,4	84,3		n	nw	nw	clear	do	clear
17	,049	,298	,751	70,6	6,2	5,2	91	,944	,147	,797	72,3	7,9	8,0	81	53,7	83,8		o	n	nw	fog	do	do
18	,056	,334	,722	70,0	5,7	5,1	91	,910	,118	,792	72,7	9,9	9,7	78	54,2	84,8		o	W	w	do	hazy	do
19	,013	,266	,747	70,7	7,3	7,2	85	,872	,110	,762	71,9	8,3	8,7	79	53,2	86,5		ne	w	n	do	clear	do
20	,007				7,2			,900				10,4			53,4	83,8		o	n	n	do	do	do
21	,008	,268	,740	70,5	5,5	5,2	92	,898	,096	,802	73,0	8,7	8,4	83	54,8	82,2		o	W	w	do	do	do
22	,999	,247	,752	70,7	5,4	5,2	95	,890	,047	,853	74,2	9,2	8,9	82	54,7	86,8		o	W	w	do	do	do
23	,033	,270	,763	71,5	5,2	5,3	92	,924	,070	,854	74,3	8,7	8,1	85	55,2	85,6		o	nw	nw	do	do	do
24	,958	,196		71,9	4,6	4,0	95	,867	,034	,832	74,0	6,9	7,4	83	55,6	89,1		o	w	nw	do	do	do
25	,954				5,1			,975				11,5			56,7	87,8		o	o	n	clear	do	do
26	,968	,140	,828	73,0	3,9	4,0	91	,846	,940	,906	75,9	6,6	6,1	89	60,8	83,0		E	W	sw	do	cumuli	do
27	,005				2,9			,884				9,3			58,8	75,4	0,05	E	E	ne	cloudy	rain	cloudy
28	,019	,396	,623	66,4	6,8	5,7	87	,897	,196	,701	68,9	10,0	9,4	76	49,2	72,2		NW	nw	nw	clear	clear	clear
29	,016	,347	,669	67,6	7,8	8,0	79	,897	,194	,703	69,1	11,2	11,0	70	47,0	79,8		ne.	ne	nw	fog.	do	do
30	,977	,328	,649	67,1	6,0	6,2	86	,883	,147	,736	70,1	9,9	9,5	78	47,5	80,7		ne.	e.	e	clear	do	do
31	,040	,376	,664	68,1	5,4	5,4	89	,948	,198	,750	70,4	6,6	6,1	88	52,2	83,2		e	ne	nw	do	do	cumuli
Mean.	30,038	29,312	0,716	69,8	6,1	5,8	88	,927	,143	0,787	72,0	8,9	8,2	82	53,3	82,8	0,05						

Captain HENNING, of the Windsor, has afforded us another opportunity of comparison with the barometer of the Royal Society at Somerset House. This gentleman's marine barometer, compared with ours last year, was found on arrival in London to stand a little lower than before the previous voyage Col. SYKES' memorandum made it in June last, 120 lower than the Roy. Soc. standard at 32° It is now found to be 0,102 below our standard at 32°, making ours—·018 of the R S Barom (See Met Reg. Nov 1834.)

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USEFUL TABLES

OF INDIAN

METROLOGY AND CHRONOLOGY.

COMPILED BY

JAMES PRINSEP,

F. R. S. Sec As S., &c.

1835.

USEFUL TABLES,

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PART THE SECOND

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OF

Ancient and Modern India;

INCLUDING A CHRONOLOGICAL TABLE OF THE PRINCIPAL EVENTS OF BRITISH CONNECTION WITH INDIA

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* In the text Surat is put as the modern synonyme of Saurashtra; this is a mistake. *Surastrene* of ancient geography is the equivalent term.

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170 Kalian chand, a tyrant, kingdom of Kanouj dismembered
56 Vikramajít, (died) reigned in *Málwá* and *Gujerát*, era established, anarchy and confusion succeeded
A D 483? Rája Boga, (Bhoja,) of the *Tuár* tribe
A D. 530 Basdeo, (Vasudeva), revived Kanouj dynasty*, cot of Bahramgor, who married his daughter
410 Rámdeo, of Rhatore race, fixed in *Márwár* tributary to Feroz Sassa Civil wars, took Kanouj and Bengal, married daughter of Sivaray of *Vijayanagar*
500 Pratab Chand his general, of *Sesodia* tribe, refused tribute to No-
— Anand deva, reigned in *Málva*, built *Mandô* and *Ramgir* [shirvan
550? Maldeo, assumed throne of Delhi, and Kanouj empire divided
— Hispál, father of
977 Jaipál, Rája of Láhore, invaded by Sabektagin and by Mahmúd
— Anandpál succeeds, defeated by Mahmúd
1009 Bachera (Vijaya ray) of Bhattis, invaded by Mahmúd, A H 393
1012 Pithirajpál (Jaipál II?) of Delhi and Lahore, fled to Ajmír
1016 Koira, (Kunwer ray—Kumárapál) king of Kanouj, surrendered to Mahmúd, in whose time the country was divided into principali-
Hardat, raja of Merat [ties
Chandpal or Calchandra, rája of Mathura
Jundray?—Nanda ray of Kalinjar
1022 *Jasuverma?* rája of Ajmír
1024 Byramdeo, (Brahma deva) of Gujerát deposed, and Sumnáth tem-
1026 Dabisalima (Saila deva) enthroned in his stead [ple plundered
1035 Daipal, governor of Sanpat, 40 miles from Delhi on road to Lahore, in Sewalik, Rám ray, another chief
1043 ———, king of Delhi, with other rájas, retake Hassi, Tanesvar, &c. from Modood Ghiznavi
1118 Balin, of Láhore, built Nágore in Sewalik, upset by Bairam Shah.
1192 Pitter Rai of Ajmír, } defeated Muhammed Ghori.
Candi (Cháwand) Ra of Delhi, }
1194 Hindu confederacy of 150 rájas defeated by do
Jay Chand, of Kanouj, defeated
Hemraj, of Ajmír, expelled Pithiray's son
Bhimdeva, of Gujerát, Goorkhas noticed, under Muhammed
1215 Sahir deva of Narvar (Patan) defeated by Mahmud II
— Uday-sa, tributary rája of *Jálwár*
1231 Raja Dewbal, of Gualiar, reduced
1246 Dilleki and Milleki rájas, of Kalinjar
1253 Diepal, rája of Sitnur, raised rebellion in Sind
1291 Rája of Rintinpur besieged by Feroz
1294 Rámdeo, raja of Deogir, (Doulatabád)
Shankaldeo, his son, married Dewal devi, daughter of
Ray Karan, of Nehrwala, Gujerat, his wife, Kamlá devi
Bhima deo, rája of Rintinbhore
1299 Hambar deo, (Hamira,) his son besieged by Alla.
1301 Koka, raja of Málwá, overcome by Ein ul mulk
1308 Nehr Deo, of Jálwar, surrendered to do
Ray Ratan Sen, of Chitor, escaped from Alla's camp
—— his nephew confirmed in that principality
Sital deo, rája of Sewana
1309 Laddar deo, raja of Warangôl, made tributary
Bilal deo, of Karnáta, resists Toghlak 1338, founds Vijyanagar.
1318 Harpál deo, son-in-law of Ram deo, flayed
1340 Nag nak, Koly chief of Kondhana —Prem ray, of Gujerát
1347 Man deo, rája of Buglana —Krishna ray of Vijyanagar
1389 Ray Sarvar, rayrayan, of Behar —Vinaek ray of Telingana
1391 Narsinh Bhan of Gualior, Rahtore chief —Narsinh of Kehrla

* Wilford names this king Sadapala, or Sadasvápála As. Res. ix. 211.

1402 Brahma deo, son of ditto, repelled Timur at Gualior.
1405 Ray Davood, and Hubboo of Toolumba
Ray Bheem of Jummo —Deva ray, of Vijyanagar.
Pertáb Sinh of Pattiála and Kampila 1452 Narsinh, his son.
Prithivy ráy and Karan ray —Bhim ráj of Condapilly
Amber ray and Mangal ray of Orissa, 1470
——— Gualior raja resisted Lodi
Sangat Sinh, expelled from Etawa —Siva ray of Vijyanagar.
Man Sinh, of Gualior, receives dress of honor
Vicramajit, his son, killed by Baber, 1526, and Gualior reduced after 100 years independence.
1491 Saha deo, rája of Katra
1493 Balbhadra ráy, of Kootumba, near Chunar Narsinh ray, his son.
Saliváhana, raja of Panná
1501 Vinaik deo, of Dholpoor
1528 Man Sinh, rája of Gualior
1533 Rana Sanka, of Chitor, (Sangráma Sinh)—finally reduced by Akber, [1570
Rawel deo of Bagur Medny rája of Chandery.
Manik chand and others killed
1540 Maldeo, of Nagore and Ajmír, most powerful rája
1542 Harkrishna ráy, of Rotas—killed by Shér Sháh
1554 Ramchandra, raja of Panná and Kalinjar
1556 Hemoo usurps the throne of Delhi—battle of Pánipat
—— Ram-Sa, a descendant of Mán Sinh
—— Jugmul and Deví Dás, rájas of *Márwar*, yield to Akber
1567 Ujaya Sinha, of Udipur—Surjan ray of Rintinbhore
1570 Chandra Sen, son of Maldeo of Ajmír
1572 Ráy Sinh, appointed to Jodhpur by Akber
1586 —— his daughter married to Selim Mirza

Table LI Márhatta Governments*

1 *Family of Sivají, rájas of Sattara*

1644 Shahji, a Subáhdár of the Carnatic under Aurangzéb, bestows jágirs on his sons—Tanjore on Ekojí—dies 1664
Siva'ji', his son, commences predatory expeditions.
———, plunders Surát, and assumes title of rája
———, establishes a military government—dies 1680, April.
Rája Ram, set up by minister—imprisoned at Raigarh
Sambhaji, assumed the sovereignty—executed at Talapur, August 1689
Santa, usurped power—murdered 1698
1689 Rája Rám, again proclaimed at *Sattara*, died 1700
1700 Tará Baí, his wife, assumed regency—incursions into Behár
1707 Si'va'ji' II son of Sambha, nicknamed Shao-ji, released on Aurangzeb's death, and crowned at *Satara*, March 1708—goes mad
1749 Ram Rája, nominal successor—power resting with minister or *Peshwa*.
1818 Pertáb Síva, or Sinh, re-instated at Satara by British, April 11

2 *Hereditary Pèshwas of Púná.*

1740 Ba'la'ji' Bájí Rao, succeeds his father—dies after battle of Pánipat
1761 Madhují Rao Bebal, 2nd son, invested as *nominal* Pèshwá, uncle Raghunáth, regent Nána Farnavis, his kárkun—dies Nov 1771.
1772 Narayan Rao, youngest son of Bálají, murdered.
—— Raghunáth Rao (Ragoba), usurped
1774 Mádhorao Naráyan, posthumous son of Naráyan, (Nána F. in power,) committed suicide 1795
1796 Bájí Rao, proclaims himself, is taken by Sindia.
—— Chimnájí, furtively invested at Puna, 26th May.
—— Bájí Rao, publicly proclaimed, 4th December
1818 ———, surrenders to and pensioned by the English, 3rd June.

* The origin of Sivají is traced in the chronicles of Mewár to Ajaya Sinh rana of Chitor, 1300, (T I 269,) thus Ajayasi, Sujunsí, Duleepjí, Seojí, Bhoraji, Deoraj, Oogursén, Maholjí, Khailooji, Junkojí, Suttoojí, Sambaji, Sivaji, Sambaji, Rámrája, usurpation of the Pèshwás.

3. *Bhúnsla Rajas of Nágpur*

1734 Raghúji Bhúnsla, nominated "Séna Sáhib Subá" or general in Márhatta confederacy
——————, received sunud of Berár from Pèshwá, 1753
Januji, eldest son, adopted his nephew
Raghúji, eldest son of Madhojí, removed by Madhorao in favor of Sabají (his uncle), killed in action soon after by Mudají
Parsájí, succeeded his father Raghují an idiot—strangled by
Múdají (Appa Sáhib), acknowledged by English—deposed 1817-18
1818 May, Goozur, grandson of Raghují, seated on musnud by do

4 *The Sindia family, from a village near Satara, now Gwalior Rájas*

1724 Ranují Sindia, an officer in the Pèshwá's army
1750 Jyapa, succeeded to his father's jagír of half of Málwá, murdered 1759
Dáttají, 2nd son of Ranují, engaged in the Panjáb wars
1769 Mahádají, 3rd, illegitimate, confirmed in jágír by Madhorao, died 1794
1794 Doulut Rao, his grand-nephew, adopted fixed his camp at Gwalior, 1817
1825 Baiza Bai, his widow, adopted Jankují, and acted as regent.
1833 Jankují, assumed the reins of government.

5 *The Holkar Family*

1724 Mulhár Rao Holkar, a Sudra, an officer of note in the Pèshwá's army.
1750 ——————, obtained jágír in *Múlwá*, died 1767.
1767 Málí Rao, grandson, succeeded under regency of
Ahilya Bái, his mother, but died soon after
Tukají Holkar, (no relation) appointed to command of troops
1797 Jeswant Rao Holkar, illegitimate son—maintained predatory rule.
1805 ——————, confirmed in jágír of Indore, &c —died insane
1811 Tulsi Bai, widow, adopted his illegitimate child
—— Mulhár Rao Holkar, battle of Mehadpur, December 1818.
1834 Martand Rao, adopted son, dispossessed by
—— Hari Holkar, present chief

6 *Gaikwar family—now reigning at Baroda, Gujerát*

1720 Dammají Gaikwár (Shamsher Behádur), officer under Khandi Rao Holkar
1731 Pilají Gaikwar, nominated *Séna Khas Khèl*—murdered
1732 Dammají, son, occupied east of Gujerát, died 1768
1768 Govind Rao, 2nd son, succeeded, but eldest, Syají, an idiot, supported by
1771 Fatih Sinh, youngest, who held real power at Baroda
1790 Mannají Rao, assumed charge of Syají, as regent—died 1793
1793 Govind Rao, made regent 19th December, died September 1800
1800 Ananda Rao, eldest son—disputes with Mulhár and Kanhají
1805 ——————, Treaty with British government
—— Fatih Sinh

Table LII Si'kh Government of Láhore.

A D
1419 Na'nak, founder of the Síkh sect, born
—— Guru Angad, wrote some of the sacred books.
1552 Amera dás, Khetri
1574 Rám dás, beautified Amritsir
1581 Arjun Mal, compiled the *A'di Granth*
1606 Har Govind, first warlike leader
1644 Har Ray, his grandson
1661 Har Krishna, died at Delhi
1664 Tegh Behádur, put to death by Moslems
1675 Guru Govind, remodelled the Síkh government
1708 Bandu, last of the succession of Gurus—put to death by Aurangzeb
—— Predatory bands—internal feuds
12 *misals* or tribes of Sikhs captured *Láhore* and occupied *Panjáb*.
Charat Sinh, of Sukelpaka misal, died 1774
1774 Mahá Sinh, his son, extended his rule—died 1792
1792 ——————, his wife, regent, with Lakhpat Sinh minister
1805 Ranji't Sinh, (born 1780,) established Lahore independency

BUDDHIST GENEALOGIES

Table LIII. Chinese and Japanese Chronology —*From M. Klaproth's translation, Paris*, 1833

[*The Japanese names are distinguished by the letter* J]

Ta chen seng wang.
I szu ma wang
Yéon lo tho wang
Kio lo wang
Ni feon lo wang
} Genealogy of Sa'kya, according to the *Bauddha* works of the Chinese

Szu tsu kie wang (Sans *Sinhahána kabána*
Tsing fan wang, *Suddodana*, (and three brothers, Sans *Suklodana*, *Amitidana*, and *Dhotodana*)

B C
1027 Si tho to, nan tho, Chykia, (Sa'kya muni,) born
999 Sákya becomes eminent in 8th year of Ajatasvara of *Magadha*
949 Sakya or Buddha (Fo), attains nirvána, (dies)
868 Anan *(Ananda)*, second patriarch, dies
833 A yu wang *(J A ik o)* (Sans *Asoka)*, dies
806 Changna ho sieou, 3rd patriarch, dies
741 Yeou po kiu to *(J Ou fa kik ta)*, 4th patriarch, dies
692 Thi to kia *(J Dei ta ka)*, 5th ditto, dies at *Mathurá*
687 Wong chu, disciple of Sáriputra
660 Commencement of Japanese monarchy
637 Mi chu kia *(J Mi sia ka)*, 6th patriarch of *Magadha*, dies
604 Lao tan *(J Ro tan)*, founder of *Tao tsu* sect in China, dies
590 Pho siu mi *(J Fá siu mi)*, 7th patriarch, dies in N India
551 Confucius, born in the kingdom of *Lore*
550 500 *arhans* of Kashmír (*ka sits mi ra*) preach the law
535 Foe tho nan ti *(J Boudz da nan dai)*, 8th patriarch (Sans *Boudhánandi)* of Canara, dies
487 Fou tho mi to (Sans *Boudhámita*), 9th ditto, dies
442 Hie, 10th patriarch of Central India, dies
383 Fo na ve che, 11th ditto of *Palibothra*, dies
327 Mi ming ta szu, 12th ditto (Sans *Asvagocha)* of Benares, dies
264 Kia pi mo lo, 13th ditto of West India, dies
Commencement of the Tsin Dynasty of China
212 Loung chou, 14th ditto of Central India, dies
161 Kia na chi pho, 15th ditto of W India
130 Ko li nan tho, makes an image of Mi le in India
113 Lo hoei lo to, 16th patriarch of *Kapila*, dies
74 Sang kia nan thi, 17th do , born at *Chi lo fa*, dies
13 Kia ye che to, of *Ma ti*, 18th ditto, dies
2 King hian fetches Buddhist scriptures from the kingdom of *Yue ti.*

A D 22* Kieu mo lo to, of *Ferghána*, 19th patriarch, dies
24 to 57 Hindus carry Buddhist religion into Java
65 Buddhism introduced at the court of *Ming ti*, Emp of China
74 Tu ye to, 20th patriarch of India, dies
117 Pho sieou phan theou, 21st ditto, dies.
165 Mo nou lo, of *Nati*, 22nd ditto, dies
209 Fo le na, of *Ferghána*, 23rd ditto, dies
259 Szu tsu pi khieu, of *Magadha*, 24th ditto, dies.
266 to 313 The *Prajna páramita* translated into Chinese
300 Won lo tchhu, of *Khotan*, translates the Fang kouang king
325 Pho che szu to, of *Ki pin* or Cábul, 25th patriarch, dies
372 Introduction of Buddhism into *Kaoli* (Corea)
382 Kieon mo lo chy, settles in China and translates *Mahá Prajná.*
384 Introduction of Buddhism into *Pe tsi* (in Corea)
388 Pou jou my to, 26th patriarch of India, dies.
399 Chy fa hian visits India to study

* The Chinese MS of the Bibliotheque du Roi ends here —M Klaproth derives the continuation from other Chinese and Japanese authors.

407 Introduction of Buddhism into Tibet, under *Hlato tori.*
414 Chy fa hian returns to *Chang nyan*
429 Death of Foe fou pha tho lo, of *Kapila vástu*, who translated the *Hou-yan king* in China
457 Pan jo to lo (*Prajná dhara*) of S E India, 27th patriarch, dies
499 Pou thi ta ma (*Bodhi dharma*), 28th patriarch of N India, settles in China, as 1st patriarch of that country, dies in 508
506 Sang kia pho lo, of *Fou nan*, made chief of Chinese Buddhist temples, by the Emperor *Siuan ven ti*, dies in 525
528 Introduction of Buddhism into *Sin lo* or *Sinra* (in Corea)
552 Ditto into Japan
592 Death of Hoei kho ta szu, 2nd patriarch of China
606 Seng lin ta szu, 3rd ditto, dies
629-645 Yuan honang, samanean of the *Chhin* family, travels in India, and translates many books
632 General introduction of Buddhism into Tibet, under *Srong dbzan gampo.*
651 Death of Tao tin ta szu, 4th patriarch of China
675 Death of Houng jin ta szu, 5th patriarch of China
676 Ti pho ho lo, priest of *Magadha*, visits China and translates books.
699 Chy chha nan tho, of *Cábul*, ditto, dies in 710
713 Hoei neng ta szu, last patriarch of China, dies
732 Pou koung, a brahman *sramana* visits China and translates the questions of *Manju Sri*, (*Kin kang ting king*)
814 (about) Phan jo, priest of *Cabul*, settles in China, and translates the *Houa yan king*
854 Phan jo, made *Fa pao ta szu*, grand master of the treasure of religion.

Table LIV Buddhist Chronology of Tibet

From the Vaidúrya Karpo, written at Hlassa in the year A D 1686 Translated in Csoma's Tibetan Grammar, p 181

B. C 962 Birth of Shakya (*Chomdandás*)
882 The *Kála Chakra* system taught by him, his death.
881 The *Mula Tantra* compiled at *Shambhala*
879 Death of Zla bzang, king and author of ditto
878 Padma Sambhava born
838 Manju Ghosha born in China
432 Nagarjuna born
278 Rigs-dan-grags-pa, ascended the throne of *Shambhala*
A. D 252 Nyan-tsan, king of Tibet, (Thorhori,) died 371
618 Doctrine of "endeavouring perfection" upheld
622 Nam-gyal, king of Shambhala, epoch of 403 years, called *Mekha gya-tso*, commenced
627 Srong-tsan gam-bo born
639 Kong-cho, a Chinese princess, arrived in Tibet
651 *Phrul-snang* college, or *Vihar*, built at *Lhassa*
728 Khri srong, king of Tibet
747 Padma Sambhava arrived in Tibet, returned to India, 802
804 A new astronomical period commenced
861 Langtarma born, abolished Buddhism, 899
965 *Kala Chakra* system introduced into India
971 Restoration of Buddhism
980 Atisha born
1002 Brom-ton, the teacher, born
1015 *Sol-nag thang* monastery founded
1024 Mekha gya-tsho era terminated
1025 *Kala Chakra*, or Jovian cycle, established in Tibet
1038 Milaraspa born
1052 Lang rithang pa born.
1055 *Ragreng* college founded.
1057 Lo-dang shesrab, the translator.
1071 Monasteries of *Sangphu* and *Sakya* founded
1077 Tagpo-lha-je born

1079 *Grathang* monastery founded.
1082 Ras-chhung pa born
1090 Kun-gah-nying-po, the great *Sákya* Lama, born, died 1156.
1108 Phag-mo-grub-pa born
1118 Period of "deep meditation" commenced
1121 Yubrag pa born
1125 SHA'KYA SRI born
1134 Nyang, the prince, born
1156 The *Thel* monastery founded
1173 The *Tshal* monastery founded
1177 The *Bri-gung* monastery founded
1178 The *Stag lung* ditto
1180 The great Sákya pandit born
1185 *Gung-tang* monastery founded.
1202 Shákya Sri, of Cashmir, arrived in Tibet
1210 Ter-ton Lama born
1211 The *Lang-tang* monastery founded
1223 The *Byang* and *Dor* ditto
1233 Gro gon phagspa born, mastered Tibet 1251
1253 The *Chhos-lung* monastery founded
1288 Bu-ton born
1300 Ta-si-byang chhub-gyal tshan born
1347 Theg-chhen chhos gyal born, became Tari (king) 1347
1347 *Thes-thang* monastery founded
1355 Incarnation of Tsong-khapa, died 1417
1383 Thang-tong-gyal-po born
1389 Ge-dun-grub-pa born
1403 Shes-rab, the great interpreter, born
1407 Yearly confession at Lhassa, established by ditto
1414 Karma pa born, *Bras-pungs Vihár* founded
1417 The *Sera* monastery founded
1419 The *Sang-nags-khar* ditto
1421 Dus-zhabs-nor-zang-gya-tsho born
1427 The *Nor* monastery founded by the *Sa-skyas.*
1429 Ge-legs pal-dan succeeded to the *Gal-dan* chair
1433 The *Nalenda* monastery was founded
1435 The *Chhab-do-byams-ging* ditto
1436 Zha-lu-legs-pa succeeded at *Gal-dan.*
1437 The *Pal-khor* chaitya built
1439 *Lotsava* chhos-kyong-zang-pa born
1445 The *Pod-kar hal lung*, work on Lunations, &c written
1447 The *Bras-yul* monastery founded
1448 Lo-gros succeeded at *Galdan*
1461 Baso ditto
1462 The *Gong-kar* Vihár founded
1467 The *Ser-dog-chan* ditto
1470 The *Byams-ging* ditto
1471 Logros-tan-pa succeeded at Gah-dan, died 1473
1474 Incarnation of Gé-dun gya-tsho, died 1540
1476 The Ta-nag thub stan-nam gyal monastery founded
1478 Mon-lam-pal succeeded at Gah-dan
1500 Tshar chhen born
1507 The *Chhos-khor* monastery founded
1535 Khas grub pal gyi sengè born
1541 Snod-nams gya-tsho born, died 1586
1575 ——— invited by Althun khán, a Mongol prince.
1576 ——— built the *Chhos khor-ling* monastery
1587 Yon-tan gya-tsho born, died 1614
1615 Nag-vang lo zang gya-tsho born
1618 Period of "morality" commences
1625 Rigs-dan sengè, succeeds at *Gah-dan*
1639 Stan dsin chhos gyal, king of Tibet.

1640 Nag vang lo zang conquered whole of Tibet
1643 ——— founded the *Potala* (residence)
1650 ——— visited China
1686 This Chronology compiled at Lhassa

Table LV Kings of Tibet,

To the subdivision of the country in the tenth century from the Deptei non po, or ancient Records of Zhonnu Pal, *in Tsang, or middle Tibet, extracted and translated by M A Csoma Körösi*

*g*Nyah khri *b*tsanpo—(about two hundred and fifty years B C)
Khri *b*tsanpo hod*l*dé, } These two names may design the same person,
Mukhri *b*tsanpo, } according to different authorities
Dingkhri *b*tsanpo
So khri *b*tsanpo
Mér khri *b*tsanpo
*g*Dugs khri *b*tsanpo.
Sribs khri *b*tsanpo
Grigum *b*tsanpo
Spudé gung *r*gyel
Esho legs
Désho legs
Thiso legs
Guru legs
*h*Grong *r*hi legs
Isho legs
Za nam *r*a *l*dé
*l*Dé *h*dul-nas *g*zhung *b*tsan
Sé *r*nol nam *l*dé
Sé *r*nolpo *l*dé
*l*Dé *r*nol nam
*l*Dé *r*nolpo.
*l*Dé *r*gyelpo.
*l*De Srin *b*tsan
*r*Gyel tori long *b*tsan
Khi *b*tsan, or Khri *d*Gah
*d*Pungs *b*tsan
Khri thohi *r*jes grogs *b*tsan
Lha Thothori *g*Nyan *b*tsan—(five hundred years after the first king,) A. D. 407, see Chinese list
Khri *g*Nyan *g*rugs *b*tsan
*h*Gro *g*Nyan *l*dem-bu.
Stagri *g*Nyan *g*rigs
*g*Nam ri srong *b*tsan
Srong *b*tsan *s*gampo—born A D 627
Gung srong gung *b*tsan—(died before his father)
Mang srong mang *b*tsan—(son of Srong *b*tsan, &c)
*h*Dus sang mangpo *r*jé
*k*Lung nam *b*srunggi *r*gyelpo
Khri *l*dé *g*tsug *b*rtan més ats'hogs
Khri srong *l*de *b*tsan—(born A D 726)
Mun*é* *b*tsanpo
Khri *l*dé srong *b*tsan (or Mutig *b*tsanpo)
Ralpa chen
Khri hum *b*tsan *d*pal (or *k*Langdar ma ?)—A D. 900.
*g*Nam *l*dé hod srungs—(in the 10th century, anarchy)
*d*Pal *h*khor *b*tsan—(division of Tibet into several small principalities.)
*b*Kra shis *b*rtségs *d*pal
Skyid *l*dé Nyima *m*gon
*d*Palgyi *m*gon—(occupied *Maryul* or *Ladags*.
*b*Krashis *l*dé *m*gon—(took possession of *Spurangs*)
*l*Dé *g*tsug *m*gon—(ditto of

Then follow the names of some kings or princes who reigned in *Gugé* and *Spurangs* (or in general, in *Nári*), above *Garhwal* and *Kamaon*, commencing with the 10th century At *Lé* in *Ladags* may be found the names of the kings that successively reigned in that principality, but I could not procure them There is great confusion in the series of the princes that reigned in *Nári*, and their enumeration would be of little interest There are in Tibet several works containing lists of the descendants of Nyá khri tsánpo, the first king, whom they derive from the *Litsabyi* race, in India, but in different authors, the orthography sometimes varies, and even the whole name is differently stated This, which I now communicate, has been taken from the *Dep-ter hon-po*, "Ancient records," written by ZHONNU PA'I, a learned religious person, who lived some centuries ago, and belonged to the *Sa-skya* religious sect, in g*Tsang*, in middle Tibet —A C

TABLE LVI BURMESE CHRONOLOGICAL TABLE, *translated in Crawford's Embassy*

B C		
691		The grand epoch established by An-ja-na, the grand father of Gautama
628		Gautama born
608		Gautama began to reign
589		Gautama obtained deification (became a Buddha)
551		Ajatasat began to reign
544		Gautama died and obtained nib-b'han (annihilation)
	S E	
543	1	The Sacred Epoch established by king Ajatasat
520	24	His son, U-da-ya-bad-da, began to reign
496	48	His son, Muny-da, and after him, his son, Na-ga-da-sa
485	59	Maha Sam-b'ha-wa
478	66	His younger brother, Chula Sam-b'ha-wa, began to reign
472	72	Su-sa-na-ga, in Maj-ji-ma (Central India)
453	91	His son Ka-la-san-ka, in Maj-ji-ma
443	101	Twat-ta-paong, the founder of Sa-re-k'het-ta-ra, (or Ras-se Myo, vulgarly called Prome)
426	118	His son Bat-la-se-na, in Maj-ji ma
404	140	Nan-da began to reign, and was followed by eight kings of the same name, in Maj-ji-ma
392	162	Chan-ta-kut-ta, in Maj-ji-ma (Chandragupta)
376	168	His son Bin-tu sa-ra, in Maj-ji-ma
373	171	His son Twat-ta-ram, in Prome
351	193	His son Ram-b'haong, in Prome
330	214	His son D'ham-ma-sau-ka, in Maj ji-ma
326	218	D'ham-ma-sau-ka received the sacred affusion (Ab'hi-se-sa)
320	224	Prince Ma-hin-d'ha became a priest, (Rahan,) and his sister, Princess San g'ha-mit-ta, a priestess, (Rahan)
307	237	The period of the third rehearsal of the communications of Gautama The priest Ma-hin-d'ha went on a religious mission to Si-ho (Ceylon)
301	243	Ra-han-man, son of D'ham-ma sau-ka, began to reign in Prome
289	255	Death of D'ham-ma-sau-ka (literally "his going to Heaven ")
251	293	His son or grandson, Kak-k'han, began to reign in Prome
219	325	His son Khan-laong, in Prome
182	362	His son Lak k'hong, in Prome
148	396	His son Si-k'han, in Prome
118	426	His son Si-ri-rak in Prome
111	436	Ta-pa mang, in Prome
94	450	The communications of Gautama reduced to writing in Ceylon.
60	484	Ta-pa-man's son Pi-ram, in Prome
39	505	Ram-mak-k'ha, in Prome, and his son
A D		
21	565	Ram-sin-ga, in Prome, and his son
54	568	His son Ram-mun-cha-hin-da, in Prome

39	583	His brother Be-rin-da, in Prome.
54	598	His son Mun-ja, in Prome
56	600	His son Pu-nyan-nya, in Prome
59	603	His brother Sa-k'ha, in Prome
62	606	Sa-k'hi, in Prome
65	609	His younger brother, Kan-un, in Prome
66	610	His elder brother, Kan-tak, in Prome
69	613	His elder brother, Bin-ja, in Prome
73	617	His son Su-mun-dri, in Prome
	P E	
76	1	The Prome Epoch, established by king Su mun-dri
80	2	His son Ati-tra, in Prome
83	5	His brother Su-panya-na-ga-ra-chin-na, in Prome
94	16	Death of king Su-panya-na-ga-ra-chin na.
107	29	Sa-mud-da-raj began to reign, in Pugan
152	74	Ras-se-kyaong, in Pugan
167	89	Phru-chau-ti, in Pugan
242	164	His son T'himany-rany, in Pugan
299	221	His son Rang-mang pok, in Pugan
324	246	His son Pok-san-lany, in Pugan
386	308	Bud-d'ha gau-sa went to Ceylon
387	309	Pok-sang-lany's son, Kyaong-du-rach, began to reign.
412	334	His son, Sany-t'han
469	391	Muk-k'ha-man, and Su-rai
494	416	Sany-t'han s great grandson, Ra-mwan-mya
516	438	Sok-ton
523	445	His son Sang-lang-kyaung-ngai
532	454	His brother Sing-lang-pok
547	469	His brother K'han-laong
557	579	His brother K'han-lap
569	491	His son T'hwan-t'hok
582	501	His son T'hwan-piach
498	520	His son T'hwan-khyach
613	535	Pup-pa-chau-ra-han
	V E	
639	1	The present vulgar Epoch, established by Pup-pa-chau-ra-han.
640	2	His son-in-law, Shwe-bun-si, succeeded.
652	14	His brother Pis-sun
660	22	His son Pit-taung
710	72	His brother Na-k'hwe
716	78	Myang-ka-kywe
726	88	Sing-ga
734	96	Sing-k'hwan
744	106	His son Shwe-laung
753	115	His son T'he-wan-twang
762	124	His son Shwe-mauk
766	128	His son Chau-k'hang-nach.
785	147	His brother T'hwan-lwat
829	191	His son K'hai-lu
846	208	His brother Pyany-bya
864	226	His son Tan-nak
889	251	Sin-chwan, and his brother, Cha-le-nga-kwe
914	276	His son Sing-g'ho
930	292	Taung su-kri, (the mountain chief)
945	307	Kwan-chau-Kraung-pru
966	328	His son Kraung-cho
972	334	His brother Chuck-ka-té
997	359	Kraung-p'haus'son Nau-ra-t'ha-chau
1030	392	His son Chau-lu
1056	418	Kyan-chach-sa
1081	443	His grandson Alaun-chany-su.
1151	513	His son Ku-la-kya

1154	516	His son Mang-rai-na-ra-sung-ga
1157	519	His brother Na-ra-pa-ti-chany-su
1190	552	His son Je-ya sing-ga, or Nan-taung-mya-mang.
1212	574	His son Kya-chwa
1227	589	His son Uch-cha na
A D	V E	
1233	595	His brother Mang k'hen-k'hye
2771	639	His son Kyany-chwa
1291	653	His son Chau-nach
1300	662	Ta-chi-shang-si-ha-su, in Panya
1313	675	His son Chau-mwan nach, in Panya
1322	684	His son Uch-cha-na This year Asang-k'ha-ra chau-rwan founded Chit-kaing, and began to reign
1330	692	His elder brother, Ta-ra bya-kri, in Chit kaing Saigaing
1342	704	His younger brother Na-chi-shang-kyany-chwa, in Chit-kaing
1351	713	His son Kyany-chwa, in Chit-kaing
1356	718	Chau mwan-nach died, and Pugan was destroyed
1362	723	Kyany chwa's brother, Mau-pa-na-ra-su, in Chit-kaing
1364	726	His elder brother Uch-cha na-praung, in Chit-kaing This year Sa-to-mang-bya founded Angwa (Ava), and began to reign, Chit-kaing and Pánya were destroyed
1377	739	His father-in-law, Many-kri-chwa, in Ava
1401	763	His son Ta-ra-bya-kri, in Ava, succeeded the same year by Mang-kaung 1st
1422	784	His son Chany-pru-shang-si-ha-su, in Ava
1425	787	His son Many-l'ha-gray, in Ava, succeeded the same year by Ka-le-kye-ngo
1426	788	Mo-n'hany-mang-ta-ra, in Ava
1439	801	His son Mang-rai-kyany-chwa, in Ava,
1442	804	His brother Na-ra-pa-ti-kri, in Ava
1468	830	His son Mang-k'haung 2nd, in Ava
1501	863	His son Shwe-nan-kyany-shang, in Ava, (proper name, Na-ra-pa-ti)
1526	888	Mo n'hany-so-hau-pwa, in Ava
1541	903	Un-b'haung-chan-b'hwa, in Ava
1546	908	His son Mo-bya-na-ra-pa-ti, in Ava
1551	913	Cha-kong-chany-su kyaoy-taung, or Na-ra-pa-ti gan, in Ava.
1554	916	Sa-to mang-chau, in Ava
1565	927	Prany chun-mang rai kyany-chwa, in Ava
1597	959	Nyaung-ram-man-kri, in Ava
1605	967	His son Anauk-pak-lwan-mang-ta-ra-kri, in Ava
1629	990	Sa-lwan, in Ava
1648	1010	His son Na-dat-da-ya-ka, in Ava
1661	1023	His brother Prung-mang, in Ava
1672	1034	His son Na-ra-wara, in Ava, succeeded the same year Mang-rai-kyany-tang, grandson of Sa-lwan
1698	1060	His son Man aung-ra-da-nga-da-ya-ka, in Ava
1714	1076	His son Chang-p'hru-shang, in Ava
1733	1095	His son K'haung-thit, carried captive to Han-sa-wati.
1752	1114	Alaung-b'hu-ra (Alompra) began to reign at Mut-cho-bo (Monchabo)
1760	1122	His son U-pa ra-ja, at Chit kaing
1763	1125	His brother Chany-p'hru-shang (Sembuen), at Ava
1776	1138	His son Chany-ku-cha, at Ava
1781	1143	His cousin Paung-ka-cha, commonly called Maung-mang, son of U-pa ra-ja, at Ava, succeeded the same year by his uncle Pa-dun-mang, or Man-ta-ra-kri, son of A-laung-b'hu-ra, and founder of A-ma-ra-pu-ra.
1819	1181	His present Majesty, grandson of Pa-dun-mang, ascended the throne at A-ma-ra-pura
1822	1184	Ava re-built, and made the capital.

TABLE LVII CHIEFS OF LABONG *and* ZAMMAY —*(Northern Laos of Europeans, Yeun Shan of the Burmese)*

From the Native Records consulted by Dr D Richardson, 1834 *MS*

A D	S E	Bud
576	1118	Wathoo daywa (Vásudeva) and Taka danda, founded *Labong*
578	1120	Placed Vamá on the throne (or Zamma devi), daughter of the king of *Chandapur*, widow of *Cambodia* raja
		35 Kings, or "Lords of the White Elephant"
		Aditza-woon-tha built the Pagoda
		19 kings to
	V E	Benya men yea (in Burmese, Dolana)
1289	651	Benya tso men yea, changed the capital, thrice married into Pegu family
1294	656	——— founded *Zimmay*
1331	693	Nga then patchoon, his son
1333	695	No tchoon ta yung
1334	696	Na tchoon tareung
1336	698	Ngathenpoo
1345	707	Tso kanpiú.*
1347	709	Tso boa you
1369	731	Goona
1377	739	Gnathen numa
1380	742	Thambi
1420	782	Tso Benya
1455	817	Tso neat
1463	825	Benya yothee
1503	865	Tso myn ar
1537	899	Benya tsay
1542	904	Tso myne
1544	906	Zalapaba, his daughter, called there tha Dama mahadevi
1558	920	Len bue myashee, king of *Pegu*, took the town
——	——	His son Nirata 'tso
1628	990	Ladong family restored
1630	992	Thadiu dama yaza of Pegu regained it
1763	1125	Nso oung recovered his independence
——	——	Lenbu Sheen, son of ALOMPRA of *Ava*, took it
1774	1136	Benya si Ban rebelled, threw off Burmese yoke, and joined *Bankok* allegiance
1778	1140	Chou chee weet, present king

TABLE LVIII SOVEREIGNS OF CEYLON

From the Ceylon Almanack, the Honorable GEORGE TURNOUR'S *Epitome*

B C	*Names*	*Relationship of each succeeding sovereign*
543	Wejaya, (Vijaya)	The founder of the Wejayan dynasty.
505	Oopatissa 1st,	Minister—regent
504	Panduwaasa,	Paternal nephew of Wejaya
474	Abhaya,	Son of Panduwaasa—dethroned
454	Interregnum	
437	Pandukaabhaya, (capital *Anuradhpura,)*	Maternal grandson of Panduwaasa
367	Mootaseewa,	Paternal grandson
307	Devenipeatissa,	Second son
267	Oottiya,	Fourth son of Mootaseewa
257	Maha-seewa,	Fifth ditto
247	Suratissa,	Sixth ditto—put to death
237	Sena and Goottika,	Foreign usurpers—put to death
215	Asela,	Ninth son of Mootaseewa—deposed
205	Elaala,	Foreign usurper—killed in battle.

161	Dootoogaimoonoo, ..	Son of *Kaawantissa*
137	Saidaitissa,	Brother
119	Toohl or Thullathanaka,	Younger son—deposed
119	Laiminitissa 1st, or Lanetissa,	Elder brother
109	Kaloonna or Khallaata Naaga,	Brother—put to death
104	Walagambahoo 1st, or Wattagaamini, .	Brother—deposed.
103	Pulahattha, (usurpers,)	14 7—Foreign usurpers—successively deposed and put to death
100	Bazyiha,	Reconquered the kingdom
98	Panaymaaraa,	Son
91	Peliyamaaraa,	Son—put to death
90	Daathiya,	Son—poisoned by his wife.
88	Walagambahoo 1st	Widow
76	Mahadailitissa or Mahachoola,	Second son of Koodatissa
62	Choora Naaga,	Son
50	Kooda Tissa,	
47	Anoola,	Brother
41	Makalantissa or Kallakanni Tessa, .	Son—put to death
19	Baatiyatissa 1st, or Baatikaabhaya,	Brother
A D		
9	Mahadailiya Maana, or Daathika,	Son
21	Addagaimoono or Aamanda Gaamini,	Brother
30	Kinihirridailla, or Kanijaani Tissa,	Son
33	Kooda Abhaa or Choolaabhya,	Sister—put to death.
34	Singhawallee or Seewalli,	Maternal nephew of Addagaimoono
35	Interregnum	Son
38	Elloona, or Ila Naaga,	Brother—put to death
44	Sanda Moohoona, or Chanda Mukha Seewa,	Usurper— put to death
52	Yasa Siloo, or Yataalakatissa,	Descendant of Laiminitissa
60	Subha, ...	Son
66	Wahapp, or Wasahba,	Son
110	Waknais, or Wanka Naasika,	Maternal cousin
113	Gajaabahoo 1st, or Gaamini,	Son
125	Mahaloomaana, or Mallaka Naaga, ..	Brother
131	Baatiya Tissa 2nd, or Bhaatika Tissa,	Son—murdered
155	Choola Tissa, or Kanittha Tissa,	Nephew—deposed
173	Koohoona or Choodda Naaga,	Brother-in-law
183	Koodanaama or Kooda Naaga,	Son—murdered.
184	Kooda Sirinaa, or Siri Naaga 1st,	Brother
209	Waiwahairatissa or Wairatissa,	Son
231	Abha Sen, or Abha Tissa, .	Son—put to death
239	Siri Naaga 2nd , .	Descendant of Laiminitissa—poisoned
241	Weja Indoo, or Wejaya 2nd,	Do do —deposed
242	Sangatissa 1st, . .	Do do
246	Dahama Sirisanga Bo, or Sirisanga Bodhi 1st, ...	Son
248	Goloo Abhaya, Gotha Abhaya or Meghawarna Abhaya,	Brother.
261	Makalan Detoo Tissa 1st, .	Son
275	Maha Sen, . .	Brother
302	Kitsiri Maiwan 1st, or Kirtissari, Meghawarna, .	Son
330	Detoo Tissa 2nd, ...	Brother

339	Bujas or Budha Daasa,	Son
368	Oopatissa 2nd, ...	Son
410	Maha Naama,	Brother
432	Senghot or Sotthi Sena,	Son—poisoned.
432	Laimini Tissa 2nd, or Chatagaahaka, .	Descendant of Laimini Tissa.
433	Mitta Sena, or Karalsora,	Not specified—put to death
434	Paandu, . . .	24. 9—Foreign usupers
439	Paarinda Kooda,	
455	Khudda Paarinda, .	
455	Daatthiya,	
458	Pitthiya, .	
459	Daasenkelleya, or Dhaatu Sena,	Descendant of the original royal family —put to death
477	Sigiri Kasoomboo, or Kaasypa 1st, .	Son—committed suicide
495	Moogallaana 1st,	Brother
513	Koomaara Daas, or Koomaarau Dhaat Sena, .	Son—immolated himself
522	Kirti Sena,	Son—murdered
531	Maidi Siwoo, or Siwaka, .	Maternal uncle—murdered
531	Laimini Oopatissa 3rd,	Brother-in-law
534	Ambaherra Salamaiwan, or Silaakaala, .	Son-in-law
547	Daapuloo 1st, or Daatthaapa Bhodoi, . .	Second son—committed suicide
547	Dalamagalan or Moogallaana 2nd,	Elder Brother
567	Kuda Kitsiri Maiwan 1st, or Kirtisri Meghawarna,	Son—put to death
586	Senewi or Maha Naaga,	Descendant of the Okaaka branch
589	Aggrabodhi 1st, or Akbo,	Maternal nephew
623	Aggrabodhi 2nd, or Soola Akbo,	Son-in-law
633	Sanghatissa,	Brother—decapitated
633	Boona Moogalan, or Laimini Bonaaya,	Usurper—put to death
639	Abbaseggaaheka, or Asiggaaheka,	Maternal grandson
648	Siri Sangabo 2nd,	Son—deposed
648	Kaloona Detootissa, or Laimina Katooreya,	Descendant of Laimini Tissa—committed suicide
649	Siri Sangabo 2nd,	Restored, and again deposed
665	Daloopeatissa 1st, or Dhatthopatissa,	Laimini branch—killed in battle
677	Paisooloo Kasoombo, or Kaasaypa 2nd,	Brother of Sirisangabo
686	Dapuloo 2nd, . ..	Okaaka branch—deposed
693	Daloopeatiss 2nd, or Hattha-Datthopatissa, . .	Son of Daloopeatissa 1st
702	Paisooloo Siri Sanga Bo 3rd, or Aggrabodhi .	Brother
718	Walpitti Wasidata, or Dantanaama, ...	Okaaka branch
720	Hoonnonara Riandalaor Hatthadatha, ...	Original royal family—decapitated.
720	Mahalaipaanoo, or Maanawamma, .	Do do do.
726	Kaasiyappa 3rd, or Kasoombo,	Son.
729	Aggrabodhi 3rd, or Akbo,	Nephew
769	Aggrabodhi 4th, or Kuda Akbo,	Son, (capital *Pollonnaroowa*)
715	Mihindoo 1st, or Salamaiwan,	Original royal family
795	Dappoola 2nd, ...	Son

800	Mihindo 2nd, or Dhairmika-Seelaamaiga, ...	Son
804	Aggrabodhi 5th, or Akbo,	Brother
815	Dappoola 3rd, or Kuda Dappoola,	Son
834	Aggrabodhi 6th.	Cousin
838	Mitwella Sen, or Selaamaiga,	Son
858	Kaasiyappa 4th, or Maaganyin Sena, or Mihindoo,	Grandson
891	Udaya 1st,	Brother
926	Udaya 2nd,	Son
937	Kaasiyappa 5th,	Nephew and son-in-law
954	Kaasiyappa 6th,	Son-in-law.
964	Dappoola 4th,	Son
964	Dappoola 5th,	Not specified
971	Udaya 3rd,	Brother
977	Sena 2nd ...	Not specified
986	Udaya 4th,	Do do
994	Sena 3rd,	Do do
997	Mihindoo 3rd,	Not specified
1013	Sena 4th,	Son—minor
1023	Mihindoo 4th,	Brother—carried captive to India during the Soleean conquest
1059	Interregnum,	Soleean vice-royalty
1071	Wejayabahoo 1st, or Sirisangabo 4th,	Grandson of Mihindoo 4th
1126	Jayabahoo 1st, Wikramabahoo 1st,	Brother
1127	Gajabahoo 2nd,	A disputed succession.
1153	Prakramabahoo 1st,	Son of Maanaabarana.
1186	Wijayabahoo 2nd,	Nephew—murdered
1187	Mihindo 5th, or Kitsen Kisdaas,	Usurper—put to death
1187	Kirti Nissanga,	A prince of Kaalinga
1196	Weirabahoo,	Son—put to death
1196	Wikramabahoo 2nd,	Brother of Kirti Nissanga—put to death
1196	Chondakanga,	Nephew—deposed
1197	Leelawati,	Widow of Prakramabahoo—deposed
1200	Saahasamallawa,	Okaaka branch—deposed
1202	Kalyaanawati,	Sister of Kirti Nissanga
1208	Dharmaasooka,	Not specified—a minor
1209	Nayaanga or Nikanga,	Minister—put to death
1209	Leelawati,	Restored, and again deposed.
1210	Lokaisweia 1st,	Usurper—deposed
1211	Leelawati,	Again restored and deposed a third time
1211	Pandi Prakrama Bahoo 2nd,	Usurper—deposed
1214	Maagha,	Foreign usurper
1235	Wejayabahoo 3rd, (cap *Dambadinia,)*	Descendant of Sirisangabo 1st.
1266	Kalikaala Sahitya Sargwajnya, or Paandita Prakrama Bahoo 3rd,	Son
1301	Bosat Wejaya Bahoo 4th,	Son
1303	Bhuwaneka Bahoo 1st,	Brother
1314	Prakrama Bahoo 3rd, ...	Son of Bosat Wejayabahoo.
1319	Bhuwaneka Bahoo 2nd, (at *Hastisailapura,)*	Son of Bhuwenekabahoo.
	Paandita Prakrama Bahoo 4th, Wanny Bhuwaneka Bahoo 3rd, Wejaya Bahoo 5th, ...	Not specified
1347	Bhuwaneka Bahoo 4th, (at *Gampala,)* ...	
1361	Prakrama Bahoo 5th,	

1371	Wikram Bahoo 3rd, (at *Kandy,)*	Cousin.
1378	Bhuwaneka Bahoo 5th,	Not specified
1398	Wejaya Bahoo 5th, or Veera Bahoo,	Not specified
1410	Siri Prakrama Bahoo 6th, (at *Kotta,)*	Not specified
1462	Jayaa Bahoo 2nd,	Maternal grandson—put to death
1464	Bhuwaneka Bahoo 6th,	Not specified
1471	Pandita Prakrama Bahoo 7th,	Adopted son
1485	Wira Prakrama Bahoo 8th,	Brother of Bhuwaneka Bahoo 6th.
1505	Dharma Prakrama Bahoo 9th,	Son
1527	Wejaya Bahoo 7th,	Brother—murdered.
1534	Bhuwaneka Bahoo 7th,	Son
1542	Don Juan Dharmapaala,	Grandson
	A *Malabar*, at *Yapahoo*	
	Portuguese, at *Colombo*	
	Weediye Raja, at *Pailainda Nowera*	
	Raajasingha, at *Aiwissawelle*	
	Idirimaaney Suriya, at *Seven Korles*	
	Wikrama Bahoo, at *Kandy*	
1581	Raajasingha 1st,	Son of Maayaadunnai.
1592	Wimala Dharma,	Original royal family
1604	Senaaratena, or Senerat,	Brother
1635	Raajasingha 2nd,	Son
	Koomaara-singa,	*Brother*
	Wijaya Paala,	*Brother*
1685	Wimala Dharma Suriya 2nd,	Son of Raajasingha
1707	Sriwira Prakrama Narendra-singha, or Koondasaala,	Son
1739	Sriwejaya Raajasingha, or Hanguranketta,	Brother-in-law
1747	Kirtisri Raajasingha,	Brother-in-law
1781	Raajaadhi Raajasingha,	Brother
1798	Sree Vikrama Raajasingha,	Son of the late king's wife's sister, deposed by the English, and died in captivity

In the native mode of recording the lengths of individual reigns, without referring them to a fixed epoch, anachronisms are unavoidable Mr TURNOUR has judiciously applied the following fixed points to correct the foregoing table

B C	543	The landing of Vijaya, *in the year of Buddha's death*
	307	The Mission from Dharmásoka to establish Buddhism in Ceylon
	104	The conquest of Ceylon by the Malabars
	90	The founding of *Abhayagiri* by Wala gaurbahu
A D	209	The date of the Vaitúliya heresy, in Vaivahara's reign.
	252	The revival of ditto, in the reign of Golú Abhaa.
	301	Death of Makasen, 4 years anachronism
	545	Another revival of the Vaitúliya heresy, in Ambakaira's reign.
	838	Origin of the Vijra waadiya heresy, in Mitwella Sen's reign.
	1153	The accession of Prákrama Báhú, 6 years anachr
	1200	Ditto of Sahasa Mallawa, by Dambulla rock inscription, A. B 1473.
	1266	Ditto of Panditta Prákrama Báhú 3rd, error 7 years
	1347	Ditto of Bhuwaníka Báhú 4th.

In the remaining portion of the history of Ceylon, other materials have not been wanting for the adjustment of its Chronology

TABLE LIX GREEK DYNASTIES IN ASIA, *founded after the death of Alexander the Great, by his generals, &c*

B C
334 ALEXANDER the Great, born 356 died 323

Syria

B C
310 Seleucus I Nicanor
281 Antiochus I Soter
259 Antiochus II Theos
244 Seleucus II Callinicus
226 Seleucus III Ceraunus
222 Antiochus III Magnus
Achæus
187 Seleucus IV Philopator
174 Antiochus IV Epiphanes
164 Antiochus V Eupator
162 Demetrius I Soter
150 Alexander I Bala
145 Demetrius II Nicator
144 Antiochus VI Theos
144 Tryphon
140 Antiochus VII Sidetes.
127 Alexander II
121 Seleucus V
120 Antiochus VIII Gryphus.
112 Antiochus IX Cyzicenicus.
94 Seleucus VI
93 Antiochus X Eusebes.
92 Antiochus XI
91 Philip, and
90 Demetrius III Euchares
85 Antiochus XII (Dionysius of Josephus)
81 Tigranes, of Armenia
61 Antiochus XIII Asiaticus
Syria became a Roman province.

Asia Minor

B C
309 Antigonus
298 Demetrius Poliorcetes

Parthia

B C
253 Arsaces I
238 Tiridates*
196 Artabanes
Phriadatius
Phrahates
Mithradates
Phrahates II
Artabanes II
Mithradates II
Mnaskires
Sinatroces
Phrahates III
Mithradates III
Orodes
22 Phrahates IV
Phrahataces
Orodes II.
Vonones I
Artabanes III
Gotarces
Bardanus
A. D Vonones II.
52 Vologeses
99 Pacorus
118 Chosroes
160 Moneses
167 Vologeses II
195 Vologeses III
215 Artabanes IV
235 Artaxerxes, King of Persia, 1st of the Sassanidæ See Table LXVIII

Known Kings of Bactria

B C
255 Theodotus I
243 Theodotus II
220 Euthydemus, of Magnesia
195 Apollodotus
Menander, king of India
Heliocles (?)
Demetrius, son of Euth
181 Eucratides the Great
146 Eucratides II
125 Destruction of the Bactrian Empire by the Tartars and Scythians

New names discovered on Greek coins dug up in the Panjáb, connecting the Bactrian with the Hindu dynasties

Agathocles.
Pantaleôn
Diomedes
Antilakides.
Lysius
Philoxenus
Antimachus
Nonus
Mayus.
Kodus.
Azus.
Azilisus
Hermæus
Unadpherrus
Kadaphes Choranus
Oohemo Kadphises
Rao Kanerkos.
Rao nanoiao oerki korano, (the series here falls into the Canouj group) See Table XXIX

* The family name Arsaces is applied to all the princes of Parthia, hence called the *Arsacidæ*, and is almost the only one visible on their coins their titles are *megas, dikaios, euergetes, epiphanes, zenios, theos, nikator, philellenos, theopator, &c*

TABLE LX *Mythological period of Persian history*

Peshdâdian dynasty

Kaiumars, by some supposed Adam, or Noah, reigned at *Balkh*
Siamek his son.
Hoshang
Thamurath, surnamed Deoband
Jamshid, reigned at Persepolis
Zohâk, surnamed Alvani, an invader
Ferîdûn, restored by Kawa the blacksmith
Irâj
Koshang
Manuchehr
Naudar
Afrasiab, king of Turkistân
Zab, brother of Naudar
Ghorshasp

Kaianian dynasty

Kai-kobad, (*kai* signifies the mighty)
Kai-Kavus, son or grandson Rustem his general
Kai-Khôsru, grandson Cyrus the great.
Loharasp, son of Orond Shâh (Cambyses omitted ?)
Gushtasp, his son Hystaspes of Grecian history
Isfendiar, his son Apanda or Astyages of do
Kai Bahman, or Ardeshîr darázdast. Artaxerxes Longimanus
Homai, daughter and wife of do
Darab, son of do
Dara, his son the Darius overcome by Alexander the Great

[The *Muluk-tawâif*, or Petty kings, following Alexander, called by the Persians the *Ashkanians* and *Ashghanians*, have been given above as the Arsacidæ of the Greeks]

TABLE LXI KINGS OF PERSIA, *of the Sassanian race.*

A D		
223	1	Ardeshîr-Babegân ben Sâsân, or Artaxerxes
238	2	Shahpûhr, Shapûr, or Sapor, captured Valerian
271	3	Hormuzd or Hormisdas
273	4	Baharâm or Varanes
279	5	Baharâm or Varanes II
296	6	Baharâm or Varanes III
297	7	Narsê or Narses, conquered Armenia and Galerius
303	8	Hormuzd or Hormisdas II.
310	9	Shahpûhr or Sapor II
380	10	Ardeshîr or Artaxerxes II
384	11	Shahpûhr or Sapor III.
389	12	Baharâm or Varanes IV
399	13	Yezdegird or Isdegerde.
420	14	Baharâm-gaur or Varanes V. visited India.
440	15	Yezdegird or Isdegerde II.
457	16	Hormuzd or Hormisdas III
457	17	Fîrûz or Perose, allied with Khakan of Huns
488	18	Balas, Palash, or Balasces.
491	19	Kobâd or Cavades.
498	20	Jamasp
531	21	Khosrû, Kesrî, (NUSHIRVAN,) or Chosroes
579	22	Hormuzd or Hormisdas IV. deposed by his general.
589	23	Khosrû-Parvîz, Kesrî, or Chosroes II put to death by
628	24	Kobâd Shîrûyieh or Siroes
629	25	Ardeshîr III or Adeser Anarchy
629	26	Shahriâr or Sarbazas
629	27	Purân-Dokht.

A. D		
631	28	Azermi-Dokht
631	29	Ferokh-zad-Bakhtyar
632	30	Yezdegird or Yezdegerde III, overthrown by Musulmans 641

TABLE LXII KHALIFS, *vicegerents or successors of* MAHOMED *or* MUHAMMED BEN ABD-ALLAH, *whose death occurred in the* 11*th of Hejra era, or A D* 632

[This and the following from Marsden's Numismata Orientalia]

A H	A D		
11	632	1	Abubekr.
13	634	2	Omar
23	644	3	Othmán.
35	656	4	Alí
40	661	5	Hasan ben Alí, retired at Medina—Hosein killed at Kerbela
			Race of Ommiah, reigning at Damascus.
41	661	1	Muáwíah
60	680	2	Yezíd ben Muáwíah
64	684	3	Muáwíah II ben Yezíd
64	684	4	Abdallah ben Zobeir
84	684	5	Merwán ben Hul-akem
65	684	6	Abd-ul-malek ben Merwan
86	705	7	Walíd ben Abd-ul malek
96	714	8	Soleímán ben Abd-ul-malek
99	717	9	Omar ben Abd-ul-azíz
101	720	10	Yezíd II ben Abd-ul-malek.
105	724	11	Héshám ben Abd-ul-malek
125	743	12	Walíd II ben Yezíd
126	744	13	Yezíd III ben Walíd
126	744	14	Ibráhím ben Walíd
127	744	15	Merwán II ben Muhammed, deposed and slain
			Race of Al-Abbás, reigning at Baghdád.
132	750	1	Abúl Abbás al-saffah
136	754	2	Almansúr
158	775	3	Al-Mahdí ben al-Mansúr
169	785	4	Al Hádí ben al Mahdí
170	786	5	Harún al-Rashíd ben al-Mahdí
193	809	6	Al-Amín ben al-Rashíd
198	813	7	Al-Mámun ben al-Rashíd
			Ibráhím ben al-Mahdí, competitor, 817—818
218	833	8	Al-Mòtasem billah ben al-Rashíd
227	842	9	Al-Wáthek-billah ben al-Mòtasem.
232	847	10	Al-Motawakkel ala'llah ben Mòtasem
247	861	11	Al-Mostanser billah ben Motawakkel
248	862	12	Al-Mostàin billah ben Muhammed ben Mòtasem.
252	866	13	Al-Mòtaz billah ben Motawakkel.
255	869	14	Al-Mohtadí billah ben Wáthek
256	870	15	Al-Mòtamed ala'llah ben Motawakkel, Egypt independent Muwaffek billah, his coadjutor, from 871 to 891
279	892	16	Al-Mòtadhed billah ben Muwaffek
289	902	17	Al-Moktafi billah ben Mòtadhed , provinces independent
295	908	18	Al-Moktader billah ben Mòtadhed, murdered by a eunuch
320	932	19	Al-Káher billah ben Mòtadhed
322	934	20	Al-Radhí billah ben Moktader, Amír ul omra powerful.
329	940	21	Al-Motakí billah ben Moktader
333	944	22	Al-Mostakfi billah ben Motakí
334	946	23	Al-Motí billah ben Moktader
363	974	24	Al-Taí billah ben Motí
381	991	25	Al-Káder billah ben Ishak ben Moktader
422	1031	26	Al-Káim beamrillah Abú Jáfar Abd-Allah ben Káder.
467	1075	27	Al-Moktadí billah Abu'l Kasem Abdallah ben Muhammed ben Káim

487	1094	28	Al-Mostadher billah ben Mokteadi
512	1118	29	Al-Mostarshed billah ben Mostadher
529	1135	30	Al-Ráshed billah ben Mostarshed
530	1136	31	Al Moktafi beamrillah ben Mostadher
555	1160	32	Al-Mostanjed billah ben Moktafi
566	1170	33	Al-Mostadhi beamrillah ben Mostanjed
575	1180	34	Al-Násar aldín illah ben Mostanjed, professes Shía doctrines
622	1225	35	Al Dháher beamrillah Muhammed ben Naser
623	1226	36	Al-Mostanser billah Abú Játai Al Mansúr ben Dháher
640	1242	37	Al-Mostásem billah Abú Ahmed Abd-Allah ben Mostanser

In the year 656, (1258,) *Baghdád* was besieged and taken by the Moghul Chief HULA'GU, grandson of JENGHIZ KHA'N, and the Khalif MOSTÁSEM put to death

TABLE LXIII SAMANIAN OR SAMA'NI' *Dynasty, of Bokhára, Khorásán and* PERSIA

A H	A D	
261	874	Nasr ben Ahmed, great grandson of Samán, a robber chief, appointed governor of *Bokhára* by the Khálif Mòtamed
279	892	Ismáil ben Ahmed
295	907	Ahmed ben Ismáil
301	913	Nasr ben Ahmed
331	943	Nûh ben Nasr
343	954	Abd-ul malek ben Nûh,
350	961	Al-Mansúr ben Nûh
366	977	Nûh ben Al-Mansúr
387	997	Al-Mansûr ben Nûh, deposed and blinded.
389	998	Abd-ul-malek ben Nûh, overturned by the *Ghaznavis*

TABLE LXIV GHAZNEVIDE *Dynasty of* PERSIA *and* INDIA, *including Khorasan, Maver-ul-nahr, Bokhara, &c Capital Ghazní*

A H	A D	
365	975	Sabactagin, a Turkish slave of Alpteghin, a general in the service of Sultán Nûh of the Samanides, held government of *Ghazni*, and Khorásán
387	997	Ismael appointed successor, but displaced by
387	997	Sultán yemin ud-daulat abul kasim MAHMUD
421	1030	Muhammed, his son, deposed instantly
421	1030	Masaud, another son, deposed and killed
432	1041	Muhammed, restored, and again deposed
433	1042	Maudud, son of Masaud
440	1048	Shams ud-din allah Saif ud-daulah, ABDURRASHID
444	1052	Ferokhzad, son of Masaud.
451	1059	Malek Mouiád IBRA'HIM.
481	1088	Julal ud-din Masaud, or Abusaid.
508	1115	Arslan Sháh.
512	1118	Bahram Sháh
548	1153	Nizam ud-din Khosru Sháh
579	1183	*Ghazni* taken by Shaháb ud-din, and the *Ghori* dynasty established *(See Tab* LXXII*)*

TABLE LXV SULTA'NS *of the* SELJU'K DYNASTY

[The grandsons of SELJU'K, a Turk of the tribe of *Khazar* or *Ghaz* on the Caspian, Toghrul-beg and Jáfer-beg Daoúd, were in the service of Mahmúd of *Ghazni* In A. H 429 (1036), the former resisted Masáud, and received investiture as Sultán of Khorasán from the Khálif The three branches of the Seljúk family settled in *Hamadán*, *Kermán*, and *Rum* or Anatolia —Marsden's Or Num]

I * *Seljuk dynasty of Irán or Persia.*

A H	A D	
429	1037	Rokn ud-din Abuthaleb, TOGHREL BEGH, Mahmúd.
455	1063	Alp Arslan, Abushajia Azz ud-din

465	1072	Malekshah, Moa' ud-dín abul fateh
485	1092	Barkiarok, rokn ud-dín abulmozaffer kásim in his reign the empire was divided, he retaining *Persia*, Ghiás ud dín Muhammed, *Syria* and *Aderbiyán* and Moaz ud-dín burhan sanjiar, *Khorásán* and *Maveraulnahr*.
498	1104	Malek Shah, his son, deposed
498	1105	Muhammed, chosen Sultan
511	1118	Mahmud, Moghiáth ud-dín Abul Cásem.
525	1131	Daoud, his son, deposed
526	1131	Masaud, Ghiath ud-dín, deposed
527	1132	Toghrul, son of Muhammed
529	1134	Masaud, re-established
547	1152	Malek Shah, son of Mahmud, deposed
547	1152	Mahmud, grandson of Bogiakhán, at *Merv*
552	1157	Muhammed, his son, at *Hamadan*
554	1159	Suleimán Sháh, killed
555	1160	Arslán Shah, son of Toghrel, son of Muhammed
571	1175	Toghrel Shah, his son

II *Seljuk dynasty of Kerman*

433	1041	Kadherd, or Karut begh, installed by Toghrel begh
465	1072	Sultan Shah, his son
467	1074	Turan Sháh
489	1096	Iran Sháh
494	1100	Arslán Sháh
536	1141	Moghiath ud-dín Muhammed
551	1156	Toghrek Shah
565	1169	Bahrám, Arslán, and Turan Sháh dispute succession
——	——	Muhammed Sháh, dispossessed by Malek dinar 583-1187

III *Seljuk dynasty of Rúm or Anatolia Capital Iconium*

A H	A D	
470	1077	Suleimán ben Kotlumish
478	1085	Interregnum of seven years
485	1092	Daoud Kilij Arslán ben Suleimán.
501	1107	Saisan ben Kilij Arslán
510	1116	Masáud ben Kilij Arslán
551	1156	Azz-ud-dín Kilij Arslán ben Masáud, destroyed 1st crusade army
584	1188	Kotb-ud-dín Malek Shah ben Kilij Arslán, deposed
588	1192	Ghiás-ud-dín Kai Khosru ben Kilij Arslán, deposed
596?		Rukn-ud dín Suleimán ben Kilij Arslan, deposed
600	1203	Kilij Arslan ben Rukn-ud-dín, deposed
600	1203	Ghias-ud-dín Kai Khosru, (restored)
607	1210	Azz-ud-dín Kai Kans ben Kai Khosru
616	1219	Ala-ud-dín Kai Kobád ben Kai Khosru
634	1236	Ghiás-ud-dín Kai Khosru ben Kai Kobád, invaded by the Moghul Princes, descendants of Jenghiz Khán *(See Tab)*
643	1245	Azz-ud-dín Kai Káus, in nominal conjunction with his brothers, Rukn-ud-dín and Ala-ud-dín, sons of Kai Khosru
655	1257	Rukn-ud-dín Kilij Arslan
666	1267	Ghiás-ud-dín Kai Khosru ben Rukn-ud-dín
682	1283	Masáud ben Azz-ud-dín Kai Kaus, died 708—1308

TABLE LXVI ATABEGS *of* IRA'K, *ruling Ministers under the latter Princes of the Seljukian race*

Mosul Branch.

A. H	A D	
521	1127	Imád ud-dín Zengi.
540	1145	Seif ud-dín Gházi ben Zengi
544	1149	Kotb ud-dín Maudud ben Zengi
565	1170	Al-Moaz Seif ud dín Ghazi ben Maudud.
576	1180	Azz ud-dín Masáud ben Maudud

589	1193	Núr ud-dín (Bedrud-din) Arslán Shah ben Masáud
607	1210	Malek al-Káher Azz ud-dín Masáud ben Núr ud-dín.
615	1218	Núr ud-dín Arslan Sháh ben Kaher
616	1219	Násar ud-dín Mahmúd ben Kaher
619	1222	Al-Malek al-Rahim Bedi ud-din Lúlu
657	1259	Al-Malek as-Sálah Ismáil ben Lúlú

Haleb (Aleppo) Branch.

521	1127	Imád ud-dín Zengi
540	1145	Malek al-Adel Núr ud-dín Mahmúd ben Zengi
569	1174	Al-Malek as-Salah Ismáil ben Núr ud din Mahmúd
577	1181	Imád ud-dín Zengi ben Kotb ud dín ben Maudud, delivered *Haleb* to Sálah ud-dín or Saladin
594	1197	Kotb ud-din Muhammed ben Imád ud-dín, at *Singára*

TABLE LXVII TURCOMAN ORTOKITE PRINCES, *reigning in Mardin and Miafarkin, Syria*

		Il Ghází ben Ortok, seized Jerusalem and Mardin
516	1122	Husám-ud-dín Timurtásh ben ul Ghází
547	1152	Nejm-ud-din Abu'l Modhaffer Albi ben Timurtásh
572	1176	Kotb-ud-dín Il Ghází ben Albi (or Alpi)
580	1184	Husám-ud-dín Yúluk Arslán ben Kotb-ud-dín
597?		Malek-ul Mansúr Naser-ud-dín Ortok Arslán ben Kotb-ud-dín
637	1239	Malek us-Said Najm-ud-dín Ghází ben Náser-ud-dín Ortok
653	1255	Malek ul-Modhaffer Kara Arslan ben Nejm-ud-dín
691	1291	Shams-ud-din Dáoud
693	1293	Malek ul Mansúr Najm-ud-dín Ghází.
712	1312	Albi Malek al-Adíl Imád-ud-din Alí
712	1312	Malek as-Sáleh Shams-ud-din Sálah

ORTOKITES *reigning at A'mid and Kheifa*

A H	A D	
490	1097	Sokmán ben Ortok
498	1104	Ibrahím ben Sokmán
522?	1128	Rukn ud-din Dáoud.
544?		Fakhr ud-dín Kará Arslán ben Dáoud
562	1166	Núr ud-dín Muhammed ben Kará Arslán.
581	1185	Kotb ud-dín Sokmán ben Muhammed
597	1200	Malek as Sálah Náser ud-din Mahmúd
618	1221	Malek al-Masaud ben Malik as-Salah Mahmúd
629	1231	Melek al-Kámel, nephew of Salah ud-dín, (Saladin,) took *A'mid*

TABLE LXVIII *The* MOGOL *or* MOGHEL *empire of* TARTARY *Capital Karakurm*

A D	
1206	JENGHIZ KHA'N, or Timugin declared emperor, on the *Onon* river
1227	Tuli Khán, his son, regent during interregnum
1241	Oktai Khán, son of Jenghiz
	Tourakina Khatun, his wife, regent for 4 years
1246	Gaiuk Khán, son of Oktai
1248	Ogoulganmish, his wife, regent on his death
1251	Mangu Khán, died in 1259

The Empire of the Mogols was subsequently divided into different branches, in China, Persia, in Kapchak, &c

1260	Kublai Khán, succeeded in China, and founded the Yuen dynasty
1240	Zagatai Khan, son of Jenghiz, founded Zagatai branch in Transoxiana
1226	Tushi Khan, another son, founded Kapchak dynasty

[For these dynasties of the Tartars, and those of the Huns, Chinese, &c see De Guignes' *Histoire des Huns*]

Table LXIX Moghel-Tartar *or* Il-Khanian *Dynasty of* Persia

On the death of Mangu Kha'n son of Jenghiz Kha'n, the sovereignty of Persia was assumed by his brother

A H	A D	
657	1259	Hulágu or Halaku Il-Khán
663	1264	Abága or Abáka Il-Khán, his son
681	1282	Nikudar Oglan, 7th son of Hulaku, on conversion to Muhamedanism, took the name of Ahmed Khán
683	1284	Argh'in Kaan, son of Abaga
690	1291	Kai-khatu Kaan, ditto
694	1294	Baidu Kaan, son of Targhih, 5th son of Hulákú.
694	1294	Ghazán Kaan Muhmúd, eldest son of Arghún
703	1303	Ghiás-ud dín Au-gaptu, Khoda bandah Muhammed
716	1316	Abu Sáid Bahádur Khán, his son, on whose death in
736	1335	the dynasty became dependent
747	1346	Anúshirván Invasion of Taimúr or Tamerlane (See below)

Table LXX Moghel *Sultáns of* Khora'sa'n

795	1393	Kutb-ud-dín Ami'r Timu'r Gúrgán Sáhibkiran (Tamerlane) conquered Baghdad, invaded India, &c
807	1404	Khalíl Sultán, son of Mírán Sháh, deposed
		Sháh Rokh, behadur Sultán
850	1447	Ulugh Begh, Malak us said, of Khiva
853	1449	Abdul Latif Mírza, his son
854	1450	Baber Mírza, Sultán Abul Casem
861	1456	Mírza Sháh Mahmud, deposed
861	1456	Abu Said, son of Ahmed *(See Moghels of India)*
——	——	Jiadighiar, grandson of Shah Rokh
805	1470	Sultán Hosein Mirza, grandson of Omar
901	1505	Badi ezzaman, his son, took refuge with the Sufis

Table LXXI Kings *of* Persia *of the Sophi, Súfí, or Safi Race*

Juneid, a descendant of Safi ud-din, a Sophi or mystic philosopher, being expelled from *Aderbiyán* by the Turcoman ruler Jehan Sháh, established himself in *Shirwán* His grandson

A H	A D	
905	1499	Ismáil al Sûfî ben Sheikh Haidar, united conquered provinces and assumed sovereignty of Persia and Khorásán 908-1502
932	1525	Shâh Tahmâsp ben Ismáil
983	1575	Shâh Ismâil II ben Tahmâsp
985	1577	Muhammed Khodabandah ben Tahmâsp
994	1585	Hamzah ben Muhammed, or Amîr Hams
994	1585	Shâh Ismâil ben Muhammed
994	1585	Shâh Abbâs ben Muhammed
1039	1629	Shâh Safi ben Safi Mirza ben Abbas
1052	1642	Shâh Abbâs II ben Shâh Safi
1077	1666	Soleimân ben Shâh Abbâs
1106	1694	Shâh Husein ben Soleimân, last of the Sufis.
		Shâh Tahmâsp II ben Shâh Husein, abdicated.
1135	1722	Mahmúd, an Afghân, invaded Persia, and usurped
1137	1725	Ashraf, an Afghân, defeated by Nadir kulí
1242	1730	Shâh Tahmâsp, nominally restored, murdered 1737
1145	1732	Abbâs III ben Tahmâsp
1148	1736	Na'dir Shah or Nâdir Sultân, proclaimed king.
1160	1747	Adel Shâh, nephew and murderer of Nadir
1161	1748	Ibrâhîm, his brother
1163	1749	Shâh Rokh, blinded, driven to Khorásán.
1163	1750	Soleimân, or Mirza Seid Muhammed.

1163	1750	Ismâíl ben Syed Mustafa, under regency of Alí Merdan
1173	1759	Muhammed Kerím Khân Zendí, held power under title of Wakíl
1193	1779	Zekí Khân, usurped on his death, murdered by
1193	1779	Abú'l Fatha Khân, son of Kerím, blinded
1193	1779	Sâdik Khân, brother of do
		A' Murâd Khân assumed title of Wakíl
1199	1785	Jáfar Khân, son of Sadik, murdered
1203	1789	Lutf Alí, his son, defeated by
1209	1794	A'ghá Muhammed Khán Kâjar, an eunuch.
1211	1797	Fat-ha Alí Shâh Kâjâr, died 1834

TABLE LXXII PATAN, *Afghan or Ghorí* SULTANS *of* HINDUSTAN *Capital Dehli*

A H	A D	
588	1192	Shahab ed-dín Abu'l-Mazaffer Muhammed ben Sâm al Ghôrí, malek Ghiznih
602	1206	Kotb ed-dín Ibek or Eibek (*1st Turk dynasty*)
607	1210	Arám Shah ben Ibek
607	1210	Shems ed-dín Altemsh, a slave of Ibek
633	1235	Rukn ed-dín Fírûz Shâh ben Altemsh
634	1236	Sultâneh Reziah benet Altemsh
637	1239	Mòazz ed-dín Bîram Shâh ben Iltemsh
640	1242	Alâ ed-dín *Masàúd* Shâh ben Fírûz Shâh
643	1245	Nâser ed-dín *Mahmúd* ben Iltemsh
664	1265	Ghiâs ed-dín *Balin* Balban
685	1286	Mòazz ed-dín Kai-Kobad
688	1289	Jelal ed-dín *Fírûz Shâh* Khiljí (*2nd Turk, or Khiljí*)
695	1295	Alâ ed-dín MUHAMMED SHAH Sekander Sânî
716	1316	Shahâb ed-dín Omar ben Alâ ed-dín
717	1317	Kotb ed-dín Mubârik Shah Khiljí, murdered by Nâser ed-dín Khosru, usurper
721	1321	Ghiâs ed-dín TUGHLAK SHAH. (*3rd Turk dynasty*)
725	1324	Muhammed Shah ben Tughlak
752	1351	Moâzem Mohedzeb Fírûz Shah ben Salâr Rajab
790	1388	Ghias ed-dín Tughlak Shâh II ben Fat-ha Khân
791	1389	Abu-bekr Shâh ben Ziffer Khân
793	1391	Nâser ed-dín Muhammed Shâh ben Fírûz Shâh
796	1393	Alâ ed-dín Sekander Shâh Humâyûn ben Muhammed Shâh.
796	1393	Nâser ed-dín Mahmûd Shah ben Muhammed Shâh, overcome by
816	1413	Daulat Khân Lôdí, a Patan [Taimur Shâh, last of Khiljis
817	1414	Kiser or Khizer Khân ben Solîman, under Taimur. (*4th or Sadat*)
824	1421	Mòazz ed-dín Abu'l Fat-ha Mubârik Shâh ben Khizer
837	1433	Muhammed Shâh ben Ferîd Khân ben Khizer Khan.
850	1446	Alâ ed-dín ben Muhammed Shâh, abdicated in favor of
854	1450	Behlôli Lôdí, an Afghan (*5th or 1st Afghan dynasty*)
894	1488	Sekander ben Behlôli, made Agra the capital
923	1517	Ibrâhîm ben Sekander, last of the Afghans, defeated by Baber, 942.
947	1540	Ferîd ed-dín SHIR SHAH, expelled Humáyun (see Table LXXX)
952	1545	Islâm Shâh ben Shîr Shâh
960	1552	Muhammed Adil Shâh
961	1553	Ibrâhîm Sûr
962	1554	Sekander Shâh, defeated by AKBER

TABLE LXXIII PATAN *or Afghan Sultans and Governors of* BENGAL. *(Purbí dynasty) Capital Laknauti or Gaur*

A. H.	A D	
600	1203	Muhammed Bakhtiâr Khiljí, governor of Berar under Kutb ud-dín
602	1205	Muhammed Sherân Azz ed-dín
605	1208	Alí Merdân Ala ed-dín
609	1212	Hasám ed-dín Ghiás ed-dín

624	1226-27	Naser ed-dín ben Shems ed-dín
627	1229	Mahmud ben Shems ed-dín, became Sultan of Hindustán
634	1237	Toghan Khan, governor under Sultana Rizia
641	1243	Tiji or Tají
642	1244	Timúr Khan Kerân
644	1246	Seif ed-dín
651	1253	Ikhtiâr ed-dín Malek Yurbeg
656	1257	Jelal ed-dín Khani
657	1258	Taj ed-dín Arslan
659	1260	Muhammed Tatar Khán
676	1277	Moïz ed dín Toghrul
681	1282	Naser ed-dín Baghra (by Dow written Kera), considered 1st sovereign
725	1325	Kader Khan, viceroy of Muhammed Sháh [of Bengal, by some
741	1340	Fakhar ed-dín Sekander, assumes independence
743	1342	Ala ed-dín Mubarik
744	1343	Shems ed-dín Muhammed Shâh Ilias Bangarah
760	1358	Sekander Shah ben Shems ed dín
769	1367	Ghias ed-dín Azem Shâh ben Sekander Shâh
775	1373	Seif ed-dín Sultan as-Sulatín ben Ghias ed-dín
785	1383	Shems ed-dín ben Sultan as-Sulatín
787	1385	Kansa or Khansa, a Hindu
791	1392	Jelal ed-dín Muhammed Shâh (Chitmul ben Khansa)
812	1409	Ahmed Shâh ben Jelal ed dín
830	1426-7	Naser Shâh (descendant of Shems ed-dín Ilias Bangarah)
862	1457	Barbek Shâh ben Naser Shâh
879	1474	Yusuf Sháh ben Barbek Shâh,
887	1482	Sekander Shah
887	1482	Fat-ah Shâh
896	1490-1	Shah-zadah, an eunuch
897	1491	Firuz Shâh Habshí
899	1494	Mahmud Shâh ben Firuz Shâh
900	1495	Mozaffer Shâh Habshí
903	1498	Ala ed-dín Husen Shâh ben Syed Ashraf
927	1521	Nasret Shâh ben Ala ed-dín Husein
940	1534	Mahmud Shâh ben Ala ed-dín Husen, defeated by
944	1537	Firid ed-dín SHIR SHAH
945	1538	Humayun held court at Gaur, or *Jenatábád*
946	1539	Shir Shah again
952	1545	Muhammed Khan
962	1555	Khizer-Khan Bahadur Shâh ben Muhammed Khan
968	1560-1	Jelal ed-dín ben Muhammed Khan
971	1563-4	Soleiman Karani or Karzani
981	1573	Bayazid ben Soleiman
981	1573	Daud Khan ben Soleiman, defeated by Akber's forces

TABLE LXXIV *Kings of the East, or* SHARKI *Dynasty of* JAUNPUR

A H	A D	
800	1397	Khoja Jehan, Subahdar of *Kanauj*, *Audh*, *Kora*, and *Jaunpur*, assumed independence.
803	1400	Mubarik Shâh, his adopted son
804	1401	Shems ud-dín Ibrahim Shâh Sherki
845	1441	Mahmud Shâh ben Ibrahim
856	1451	Husen Shâh ben Mahmud ben Ibrahim Shâh.
883	1478	——— took refuge in the Court of Ala ud-dín of Bengal, where he died in 905 A H

TABLE LXXV MUSALMAN *Kings of* KASHMIR

A H	A D	
715	1315	Shams ud-dín, Sháh Mir, minister of Senadeva.
750	1349	Jamshid, expelled by his youngest brother
752	1351	Ally Sher, Alla ud-dín, a severe famine
765	1363	Shahab ud-dín, Shamuk invades Sind.

785	1386	Kutb ud-din, Hindal, defeats Rája of Lohkote
799	1396	Sikandar, Butshikan, subverts Hindu religion
819	1416	Ameer Khan, Ally Sháh, civil wars, expelled by
826	1422	Zein ul Ab-ud-din, Shády Khan, his brother.
877	1472	Haider Sháh, Hajy Khan
878	1473	Hasan Sháh
891	1486	Muhammed, a child, civil wars
902	1496	Fatteh Sháh, usurps the throne Chakk tribe converted to Islám.
911	1505	Muhammed, regains the throne, Ibrahim usurps
942	1535	Nazuk Sháh, conquest of Emperor Humayun, 1543
948	1541	Mirza Haider Doghlat, governor under him, interregnum, and dissentions
960	1552	Ibrahim II, set up by Daulet Chakk earthquake
963	1555	Ismael, set up by Ghazi Khan's party
964	1556	Habib, raised by Daulet Chakk
971	1563	Hosein Sháh Chakk embassy from Akber
986	1578	Yusuf Sháh Chakk expelled by Gohar Chakk
997	1588	—— annexation of Kashmir to the Moghel Empire by AKBER

TABLE LXXVI KINGS *of* SIND *and* TATTA

A H	A D	
87	705	*Belochistan* invaded by Hijaj, governor of Bassora, and Md Kásim

The *Ansaries*, the *Sumeras*, and the *Sumanas* or *Jams*, successively, gain the ascendancy, then a Delhi governor

	1203?	Nasir ud-din Kabbacha, becomes independent, drowned

TABLE LXXVII *The* JAMI *Dynasty of* SUMANA, *originally Rájputs*

A H	A D	
737	1336	Jám Afra, tributary to Toghlak Shah
740	1339	Jám Choban
754	1353	Jám Bang, asserted his independence
782	1367	Timaji, his brother
782	1380	Jám Salah ud-din, converted to Muhammedanism
793	1391	Jám Nizam ud-din
796	1393	Jám Ally Sher
812	1409	Jám Giran, son of Timaji
812	1409	Jám Fatteh Khan
827	1423	Jám Toghlak, invaded Gujerat
854	1450	Jám Sikandar
856	1452	Jám Sangar, elected
864	1460	Jám Nanda, or Nizam ud-din, cot of Hasan Langa
894	1492	Jám Feroz, the Turkhan family become powerful, 1520
927	1520	Sháh Beg Arghun, occupies Sind
930	1523	Sháh Hosein Arghun
966	1554	Mahmud of Bhakar
982	1572	Akber *annexes* Sind to the Empire

TABLE LXXVIII *Bahmany Dynasty of Kalbarga, or Ahsunábád*

A D	
1347	Ala ud-din Hasan Shâh ganga Bahmany, servant of a Brahman in Md Toghlak's court, subdued all the Dakhan
1358	Mahomed Shâh B I (Ghazi), makes tributary Telingana and Vijyanagar
1375	Mujahid Shâh B, killed by his uncle
1378	Dawud Shâh B, assassinated by his niece
1378	Mahmud Shâh I, youngest son of Ala, patron of literature.
1396	Ghias ud-din, blinded and dethroned
1396	Shems ud-din Shâh; puppet to Lalchin, the Malik Naib or regent.
1397	Feroz Shâh, married daughter of Vijyanagar rája, Deva Ray
1422	Ahmed Shâh Wali (Khan Khanan), war with rájas

1435 Ala ud-din Shâh II. war with Vijyanagar.
1457 Humayun the cruel, general insurrection
1461 Nizam Shâh, rájas of Telingana and Orissa powerful.
1463 Mahomed Shâh II., Malwa power increasing
1482 Mahmud II., loses Concan, Bijapur, and Berar,
1518 Ahmed Shâh II, under control of Amir Berid, minister.
1520 Ala ud-din Shâh III, deposed by ditto.
1522 Wali Ullah, murdered by ditto
1525 Kallam Ullah, Bahmany dynasty of Bidar (Ahmedabad) terminates, and is succeeded by that of Amir Berid at Ahmedabad

TABLE LXXIX BERID SHAHY *Dynasty of Bider, or* AHMEDABAD

1492 Kasim Berid, a Turki or Georgian slave
1504 Amir Berid, held sway on the nominal kings
1549 Ally Berid Shâh; first who assumed royalty
1562 Ibrahim Berid Shâh
1569 Kasim Berid Shâh
1572 Mirza Ally Berid Shâh, deposed by his relative
1609 Amir Berid Shâh II

TABLE LXXX FARUKI *Dynasty of* KANDEISH *Capitals Talner and Burhanpur*

A D
1370 Malik Raja Faruki, receives jagir of Talner, from Feroz
1399 Malik Nasir or Nasir Khan Faruki, builds *Burhanpur*
1443 Miran Adil Khan Faruki, expels Deccanies from Kandeish
1441 Miran Mubarik Khan Faruki, peaceful reign
1457 Miran Ghani, or Adil Khan Faruki I, tributary to Guzerat
1503 Daoud Khan Faruki, tributary to *Malwa*
1510 Azim Humayun, or Adil Khan F II, grandson of Guzerat king
1520 Miran Muhammed Khan Faruki, succeeds to Guzerat throne
1535 Miran Mubarik Khan Faruki, brother, war with Moghals
1566 Miran Muhammed Khan Faruki, attack from Deccan.
1576 Rája Ally Khan Faruki, acknowledges Akber's supremacy
1596 Bahadur Khan Faruki, defies Akber, is imprisoned at *Gualior*

TABLE LXXXI KINGS *of* MALWA *Capitals D'har, Mando or Shadiabád*

A D
1387 Sultan Dilawar Ghori, governor, assumes title of Sháh, 1401
1405 Sultan Hoshang Ghori, or Alp Khan, his son, defeats Narsinha Ray
1432 Ghizni Khan, or Sultan Muhammed Ghori, poisoned
1435 Mahmud Khan, or Sultan Mahmud Khilji Rana of Chitor, Kumbho presents tankas coined in his own name, 1450
1469 Sultan Ghias ud-din, peaceful reign
1500 Sultan Nasir ud-din, his son, Shahab ud-din, revolts
1512 Sultan Mahmud II, younger son, last of the Khiljis
1534 *Malwa* incorporated with Guzerat kingdom
1568 ——— annexed as a province of Akber's Empire

TABLE LXXXII KINGS *of* GUZERAT *Capital Pattan*

A. D
1391 Muzaffar Sháh I, appointed viceroy by Feroz Toghlak
1411 Ahmed Sháh I, grandson, builds *Ahmedabad* and *Ahmednagar*
1443 Muhammed Sháh, surnamed *Karim*, the merciful
1451 Kutb Sháh, opposes Malwa king, and Chitor rája Kombha.
1459 Daoud Sháh, his uncle, deposed in favor of
1459 Mahmud Sháh I. Begarrá, two expeditions to Deccan.
1511 Muzaffar Sháh II; war with Rana Sangrama
1526 Sikandar Shah, assassinated

1526 Nasir Khan, or Mahmud Sháh II, displaced by
1526 Bahadur Sháh, invades *Malwa*, murdered by Portuguese.
1536 Miran Muhammed Sháh Faruki, his nephew, of Malwa
1536 Mahmud Sháh, son of Latik Khan, released from prison.
1553 Ahmed Sháh III, a spurious heir set up by minister
1561 Muzaffar Shah III Habbu, a suppositious son of Mahmud.
1583 Guzerat becomes a province of Akber's empire

Table LXXXIII Kings *of* Multan

This province was first conquered by Mahomed Kásim, at the end of the 1st century, Hejira It was recovered by the Hindus on the decline of the Ghizni power After Mahomed Ghori's subjugation, it remained tributary to Delhi until

A H	A D.	
847	1443	Shekh Yusuf established an independent monarchy
849	1445	Ray Sehra, or Kutb ud-din Hosen Langa I, expelled the Shekh
908	1502	Mahmud Khan Langa, his minister, Jam Bayezid
931	1524	Hosen Langa II, overcome by Sháh Hosen Arghun Under Humayun, becomes a province of the empire, *(see below)*

Table LXXXIV Imád Shahy *Dynasty of* Berar, *capital Ellichpur*

A D	
1484	Fatteh Ullah Imád Shah, Bahmany, governor of Berar, became independent
——	Alla ud-din Imád Sháh, fixed his capital at *Gával*
1528?	Alla Imad Shah, married his daughter to Hosen Nizám Sháh
——	Burhan Imad Shah, deposed by his minister
1568	Tufal Khan, whose usurpation is opposed from Ahmednagar, and the family of Imád Shah and Tufal extinguished

Table LXXXV Adil Shahy *Dynasty of* Bijapur

A D	
1489	Yusuf Khan, son of Amurath II of Anatolia, purchased for the body guard at Ahmedabad
1501	—— assumed independent sovereignty as Adil Sha'h
1511	Ismael Adil Sháh Goa taken 2nd time by Portuguese
1534	Mulloo Adil Shah, a profligate, deposed and blinded by
1535	Ibrahim A S I Minister Rámráj assumes throne of *Vijyanagar*
1557	Ally Adil Sháh, war against the Hindu rája
1579	Ibrahim Adil Sháh II Chand beeby regent
1626	Muhammed
1660	Ally Adil II

Table LXXXVI Nizam Shahy *Dynasty of* Ahmednagar

A D	
1490	Ahmed Nizam Shah, Bheirg, son of a brahman of Vijyanagar, throws off Bahmany yoke
1508	Burhan Nizam Sháh, petty wars with Berar, &c
1553	Hosen Nizam Sháh I, confederacy against Vijyanagar
1565	Múrteza Nizam Sháh, Diwana, conquers Berar, smothered by
1568	Míran Hosen Nizam Shah, put to death
1569	Ismael Nizam Sháh, raised by Jumal Khan Mehdvy.
1589	Burhan Nizam Sháh II, constructs Korla fort.
1594	Ibrahim Nizam Shah, killed in battle
1594	Ahmed, son of Sháh Tahir, raised by chiefs; pensioned.
1595	Bahadur Nizam Sháh, proclaimed by Chand beeby's party, imprisoned by Akber
1598	Múrteza N S II, Nizam Sháhy dominions fall under the control of
1607	Malik Amber

TABLE LXXXVII KUTB SHAHY *Dynasty of* GOLCONDA

A D	
1512	Sultan Kuly Kutb Sháh, a Turkman, assumed title of king
1543	Jamshid Kutb Sháh, leagues with the Nizam Shahís.
1550	Ibrahim Kutb Sháh, joins league against Rámráj.
1581	Mahomed Kuly Kutb Sháh, builds Bhagnagar, or Hyderabad, died 1586
1611	Abdallah Kutb Sháh, tributary to Sháh Jehán.
1672	Abu Hasen, imprisoned at Daulatabad

Under AURANGZEB, the southern conquests were formed into six *Subahs*, viz 1, Kandeish, 2, Aurangabad, 3, Beder, 4, Berar, 5, Hyderabad, and 6, Bijapur

TABLE LXXXVIII MOGHEL EMPERORS *of Hindustán*

(Fourth descendant from TAIMUR *or Tamerlane, see Tab* LXX*)*

A H.	A D	
899	1494	BABER, Zehir ud-dín Muhammed, (mounted throne 9th June)
937	1531	HUMA'YUN, Nasir ud-dín Muhammed, (28th Jan) in 946 defeated by Shír Sháh
962	1554	——————, founded the Moghel dynasty of Dehli.
963	1556	AKBER, Abul fateh, Julal ud-dín Muhammed, (17th Feb) consolidated empire
1014	1605	JEHANGIR, Abul Muzaffar Nur ud-dín Muhammed (7th Oct)
1037	1628	SHAHJEHAN, Shaháb ud-dín Ghazi (9th Feb)
1068	1658	AURANGZEB A'lamgír, Abul Muzaffar, Mahí ud-dín, (24th Feb)
1118	1707	*Azím Sháh*, Muhammed Shahíd, (3rd March)
1118	1707	BEHA'DUR SHAH, Shah A'lem, Abul Muzaffar Kutb ud-dín (23rd Feb)
1124	1713	JEHANDAR SHAH, Mòaz ud-dín (11th Jan)
1124	1713	FEROKHSIR, Muhammed Shahíd Marbum 11th Jan)
1131	1719	*Rafi-ud-daryat*, Shams ud-dín (18th Jan.) (Abú berkat)
1131	1719	*Rafi-ud-daulat*, Shahjehán Sání (26th April)
1131	1719	*(Muhammed Nakosir.)* (May)
1131	1719	MUHAMMED SHAH, Abul fateh Násir ud-dín, (28th Aug)
1132	1720	*(Sultan Muhammed Ibrahim,)* (4th Oct)
1161	1749	A'HMED SHA'H, Abúl Nasr (20th April)
1167	1754	ALEMGIR II, Aziz ud-din Muhammed, (2nd June.)
1173	1759	*(Sháhjehán,)* (29th Nov)
1173	1759	SHAH A'LEM, Julál ud-din (Mirza Abdallah, Ali Goher), (Nov)
1201	1786	*(Muhammed Badar bakht)*
1221	1806	AKBER II, Abul Nasir, Moein ud-dín Muhammed, (3rd Dec)

TABLE LXXXIX NIZAMS *of* HYDERABAD.

1717	Azef Jáh, Nizám ul Mulk, usurped power on Aurangzeb's death.
1748	Nasir Jang, assassinated.
1757	Muzaffar Jang, ditto Salabat Jang, killed by
1763	Nizam Ali, his brother
1803	Sikandar Jâh English interference, 1807

TABLE XC NUWÁBS *and Kings of* OUDE

A D.	
	Sádet Alí Khán of *Khorasán*, Nuwáb Vizir, under Muhammed Sháh.
	Sefdar Jáng, ditto
1756	Shuja ud Dauleh, ditto
1775	Asef ud Dauleh
1797	Spurious son, Vizir Alí, displaced for
1798	Sadet Alí, brother of Shuja, Vizir of Hindustán.
1814	Ghází ud-dín Haidar Alí, Sháh Zeman, king.
1827	Naser ud-dín Haidar Ali

TABLE XCI. *Chronological Table of European and British Connection with India, compiled by Capt H B Henderson*

1204 —After the capture of Constantinople by the Crusaders, in the 4th Crusade, during their quarrel with the Greek empire, the Venetians, who had always partially competed with the Greeks for a share of Oriental trade, now obtained a grant of a portion of the Peloponnesus, with several of the best islands of the Archipelago They soon secured to themselves a monopoly, or, at least, of that portion of the trade viâ the Euxine But in 57 years, the Greeks rose in rebellion, and expelled the Latin emperor, and having been aided by the Genoese, they bestowed on them the suburb, Pera, at Constantinople, as a reward This transferred the overland trade to the Genoese, and forced the Venetians to revisit Alexandria, and procure Indian articles by the Red Sea —*Gleig*

1453 —The Turks conquered Constantinople, and by the expulsion of the Genoese from Pera, the Venetians enjoyed the whole trade while Constantinople was no longer a mart for Eastern produce, nor open to the countries of the West —*Gleig*

1497 —The Portuguese navigator, Vasco de Gama, doubled the Cape of Good Hope on the 20th November, and on the 22nd May of the following year, arrived at Calicut on the Malabar Coast, returning by the same Cape to Lisbon, in Sept 1499 —*Gleig*

1500 —In consequence of Vasco de Gama's success, a Portuguese expedition, under Pedro Alvarez Cabral, arrived at Calicut, on the 13th September, formed the first European factory in India at that place, and returned to Lisbon on July 1st, 1501.—*Gleig Picture of India Bruce's Annals of the E I C*

1501 —In the homeward voyage, discovered the Island of St. Helena —*Bruce.*

1503 —Alphonso de Albuquerque erected the first European fortress in India, at Cochin, and re-established the Factory at Calicut, he settled a trade at Coulan, and a factory at St Thome —*Bruce*

1506 —Alphonso de Albuquerque, the founder of the Portuguese Eastern Empire, now commenced a career on a larger scale, with a squadron of 16 ships, having troops on board He defeated the Tamorin of Calicut—formed a settlement at Goa, which he fortified, sailed to the Straits of Malacca, and took the place of that name in February, 1510, reduced the Moluccа and Banda islands, at that time the gardens of the East for cloves, nutmegs, &c and at last in 1514, finally reduced Ormus, the chief seat of Persian commerce In 12 years, he raised the Portuguese Empire in India to the greatest height it has ever attained, all the principal emporia from the Cape to the China frontier, an extent of 12,000 miles of coast, being in his possession —*Gleig Bruce*

1517 —The Portuguese got possession of Point de Galle and Columbo —*Bruce.*

1518 —Albuquerque recalled The decline of the Portuguese Empire may be dated from this event —*Bruce*

1527 —An English merchant, Robert Thorne, long resident in Spain, asserted the practicability of a north-west passage to India His attempt and six others, in the succeeding reigns, failed

1530 —Sultan Baber, the eighth in descent from Tamerlane, died near Agra He had seized the empire, and re-established the dynasty of the Moguls —*Orme*

—The Portuguese driven by the natives from Ternate —*Bruce*

1531 —The Portuguese viceroy burned the principal towns from Diu to the Red Sea —*Bruce*

1536 —They built a strong citadel, at Diu, by permission of the king of Cambaya —*Bruce*

1538.—The Grand Seignior attacked the Portuguese at Diu from Suez, and failed, but at this time the increased military forces sent from Portugal to India evince the decline of their real power in the East The natives were recovering from their first panic, and found their oppressors less formidable —*Bruce*

1542 —The celebrated Father Francis Zavier, the Jesuit Missionary, arrived in India —*Bruce*

1558.—Mr Anthony Wilkinson, agent of the Russia Company, crossed the Caspian Sea into Persia, and opened a considerable trade for Eastern produce In India, the Portuguese viceroy, Francisco Baretto, was succeeded for 4 years by Don Constantine Braganza, one of the royal family —*Bruce*

1560 —Don Louis D'Ataide recovered, in great measure, the Portuguese power.—*Bruce*

1563.—Three British agents were employed at the Persian capital, and the traffic was flourishing Before this time the Venetians had essayed to undermine and oppose the Portuguese ascendancy, but in vain—while the humiliation, at this period,

of Venice itself, soon left Portugal without a competitor of any consequence —*Bruce Gleig*

1577 —At length, an Englishman, Francis Drake, son of a poor Kentish clergyman, with five ships and 164 seamen, sailed from Plymouth on the 13th December, commissioned by queen Elizabeth He passed the Straits of Magellan, ravaged the west coast of America, crossed the Pacific, touched at the Moluccas, and stopped at Ternate for some time, whence, after much friendly intercourse, he steered away for the Cape of Good Hope, and arrived at Plymouth on the 26th September, 1580. Drake entertained the queen at Deptford, and was knighted —*Gleig Mill Bruce*

1579 —Again, in India, the Portuguese power was almost dissolved, and Don Louis D'Ataide was a second time sent as viceroy His exertions were successful once more, but he soon died—in 1580 —*Bruce*

1586 —Thomas Cavendish sailed 21st July, 1586, with three ships, viâ Straits of Magellan, and visited, after capturing a Spanish merchantman, the Ladrones, and Philippines, acquiring much knowledge of the Indian Archipelago He returned to Plymouth 9th September, 1588 This year the Portuguese took possession of Macao, as a station for the China trade —*Gleig Bruce*

1589 —Diverse English merchants petitioned the queen for permission to make a voyage with three ships, and as many pinnaces, by the way of the Cape of Good Hope —*Gleig*

1591 —A squadron sailed, under Captain Raymond, and from disease and a storm, it proved an abortive enterprise only one officer, Captain James Lancaster, and a few seamen, returned —*Gleig Bruce*

1593 —An Englishman, Stevens, went to Goa with the Portuguese by the way of the Cape of Good Hope He wrote an account of his voyage

1595 —In the mean time, the Dutch having gone round the hitherto interdicted Cape, openly opposed the Portuguese in the Eastern seas They supplanted the Portuguese in the Spice trade, in a very few years expelled by force their rivals from the Moluccas, formed establishments at Java and Sumatra, and swept the Chinese and Pacific oceans with an overpowering force During the year 1595, they took possession of the Mauritius, then first occupied, but abandoned it thirteen years afterwards Bantam allowed to be occupied that year by the Dutch, as their first factory, as a reward from the king for their aid against the Portuguese —*Gleig Mill Bruce*

1596 —Elizabeth granted strong letters of recommendation to the Emperor of China to Richard Adam and Thomas Bloomfield, merchants and citizens of London, with permission to proceed with one or more ships The draft of the letter is dated 16th July —*Bruce*

1597 —The Hollanders formed a "society for trade to distant countries"—*Bruce*

1599 —The English determining to keep pace with their rivals of Holland, an association of "Merchant Adventurers," was formed this year, a fund raised to be managed by a committee of 15 persons, and the queen again more earnestly petitioned for a charter Her Majesty referred it to her council, and John Middenhall, a merchant, was sent, viâ Constantinople, on an embassy to the great Mogul The first authentic deed of the Company is preserved, and is entitled "The names of such psons as have written with there owne handes, to venter in the ptended voiage to the Easte Indias, (the whiche it maie please the Lorde to prosper,) and the somes that they will adventure, the xxij September, 1599" The fund subscribed was £30,133 6 8 divided into 101 shares, varying from £100 to £3,000 —*Bruce Mill*

1600 —A corporation formed in London entitled "Governors and Company of merchants of London trading to the East Indies" Their original petition, as now extant, stated that no "*gentleman* was to be employed in any place of charge" This corporation is the origin of the present Company, and of the British empire in India Their capital was £70,000 There were 215 sharers, and the Earl of Cumberland at their head, forming the Company The first Court of Committees or 17 Directors was held on the 23rd September, 1600 The number was changed to 24, and then their first regular meeting was on the 31st October Their Charter was finally dated by the queen on the 31st December of this year At this era, and at the commencement of the English trade to India, the Portuguese possessions in the East were as follows —Muscat, in Arabia, Ormus and Bussora, in the Gulf; Diulon on the Indus, Diu, in Guzerat, a fortified factory at Daman, the town and castle of Chaul, and a factory at Dabul, Bassein, the island of north Salsette, and Tannah, the town and fort of Goa, (their seat of power,) and factory at Onore, Barcelore, Mangalore, Cananore, the town of Calicut, a factory at Oranganore, and the port of Cochin, and factories at Coulan, Quelon, and Taccatra They had established themselves at Ceylon, and fortified Jaffanapatam On the Coromandel coast they had stations at Negapatam and St Thome In Bengal they had no factories but

commercial stations, or houses of trade They had factories at Pegu, traded up the Martaban river, had a station at Junkceylon, and possessed the valuable town and fort of Malacca They had establishments in the Moluccas, at Amboyna, Manilla, and Macao, in China Notwithstanding these valuable possessions, the Portuguese power in the East had visibly decreased, and was prepared to give way to the Dutch and English, now entering the field —*Bruce*

1601 —The earliest ship purchased was the Susan of 240 tons, for £1,600, thus the first Indiaman in the service The Company fitted her out with three others, the Malice-scourge of 600 tons, the Hector of 300, the Ascension of 260, and a pinnace of 100 tons, freighted with cloth, tin, lead, cutlery, glass, amounting to £6,860, and with £28,742 in bullion The fleet was commanded by Captain James Lancaster as "General or Admiral," and Captain Davies, 2nd in command, called "Pilot Major," the latter to have £100 wages, £200 in credit, and if the voyage gave cent. per cent £500 at the end, if 200 per cent £1000, if 400 per cent £2000 The scale of remuneration to Captain Lancaster or others does not appear They sailed on the 2nd May The French this year endeavoured to obtain a footing in India, sending out three ships from St Maloes, but they failed to reach their destination —*Bruce Gleig*

1602 —Captain Lancaster, who had been furnished with general letters from queen Elizabeth "to the greate and mightie kinge of —— our lovinge brother greetinge," arrived at Acheen, and formed with its king the first treaty of the Company in the East, with permission to settle a factory, our first establishment —*Bruce*

1603 —The English fleet returned in September, having made a successful voyage After touching at Acheen, they captured in the Straits of Malacca a Portuguese ship of 900 tons, then put into Bantam in Java, setting there a factory or "house of trade," from whence to England —*Bruce*

1604 —King James granted a license to Sir Edward Michelborne and others, to trade to the East, the first violation of the exclusive privileges of the Company, who designated the parties interlopers or private traders A French East India Company chartered this year, it failed, and was afterwards dissolved —*Bruce Mill E. I Chronologist*

1605 —Akbar died, after a reign of nearly 50 years —*Orme.*

1606 —Cloves purchased at Amboyna for £2,948, 13, sold afterwards in England for £36,287 —*Bruce*

1608 —Captain Hawkins visited Agra as Envoy —*Gleig.*

1609 —A new charter granted by James to the Company, who now saw the evil of separate licenses, the privileges rendered perpetual One of the Company's ships this year, called the Trades Increase, was eleven hundred tons —*Bruce.*

1610 —Trade attempted with Japan, and the king's permission obtained to erect a factory at Ferando —*Bruce*

1611 —The court began to receive regular communications and dispatches from their factories in India —*Bruce*

1612.—Great efforts by the Company to extend the commerce Attention was turned to Western India, and new factories contemplated After repelling much opposition from the Portuguese, the English were permitted to avail themselves of a Firmaun obtained on the 11th January of the following year, to erect factories at Surat, Ahmedabad, Cambaya, and Goya —*Bruce Gleig Mill*

1613 —Up to this year, eight voyages, realising nearly 200 per cent had been performed by various fleets, only one expedition failing, the ships of 1607, having been lost —*Mill*

1614 —Mr Edwards of the Surat factory went to Ajimere as envoy to the Mogul, Jehanguire, was presented on the 7th February, by Asaph Khan, brother of the beautiful empress Noor-Mahal, and obtained an additional Firmaun A Portuguese fleet and powerful armament defeated at Swally, with a loss of 350 men, by the English.—*Bruce*

1615 —Sir T Roe reached Agra, as ambassador from James I., the Company being at the expense of the embassy —*Bruce*

1617 —An English factory established at Macassar At this period the Company's chief factories were at Surat and Bantam, but they had establishments at Acheen, and Tekoo in Sumatra, Jaccatra, Jambee, Potania, Siam, Japan, Succadania, Borneo, and Banda —*Bruce.*

1618 —The Dutch obliged the English to resign all pretensions to the spice islands. They introduced themselves now as rivals also at Surat. The English Company's ship Ann, Captain Shillinge, obtained freedom of trade at Mocha —*Bruce*

1619 —A commission, called the Council of Defence, consisting of four members of the English, and four of the Dutch Companies, established by treaty between the nations, to prevent dispute in India It availed nothing, as the Dutch influence preponderated. The Dutch this year attacked an English fleet of four ships at Tekoo,

sunk one, and seized the others Firmauns were obtained from the Court of Persia, for facilities to trade in Persia —*Bruce Mill*

1620 —English Agents deputed from Surat to Agra, two also sent to purchase cloths at Patna —*Sketches of Bengal*

1621 —James I wrote to Shah Abbas, king of Persia, dated 19th March, thanking him for favor shown to English merchants, and requesting a continuance of such protection —*Bruce*

1622 —The English joining the Persians, attacked and made themselves masters of the island of Ormuz, resigning the same to their allies for part of the booty, and a grant of a moiety of the customs of the port of Gombron —*Gleig Bruce Mill*

1623 —In February, Captain Towerson, with nine Englishmen, nine Japanese, and one Portuguese, were seized by the Dutch, at Amboyna, and accused of conspiracy to attack the garrison, they were tried, put to the torture, and executed —*Bruce*

This cruel transaction caused much sensation, receiving the name of the Massacre of Amboyna ever after, but the particulars of the case may have been exaggerated The king issued a commission for inquiry, yet the Dutch obstinately maintained their ground as the exclusive and rightful possessors of the Moluccas, Banda, and Amboyna, and strange though it may appear, the English government, in spite of the popular indignation, seem quietly to have acquiesced until a partial compensation after a delay of 20 years, was enforced by Cromwell —*Mill Hume*

1624 —The English factories and agencies, unable to cope with the Dutch, nearly all withdrawn from stations in the Archipelago The Company obtained, this year, for the first time, permission to punish their servants abroad by martial as well as municipal law The factories at Siam, Portania, and Japan withdrawn at the time —*Bruce*

1625 —The English, alarmed at the late massacre at Amboyna, had retired, the preceding year, from Batavia to the Island of Lagundy, in the Straits of Sunda, after much mortality, were forced to abandon it, from its unhealthiness —*Bruce*

1626 —In 1621, the factory at Bantam sent to the Coromandel coast, to open a trade at Pullicat, but the Dutch effectually opposed the attempt In the following year, they seem to have succeeded in establishing a trade house at Masulipatam, and secured a considerable quantity of coast goods In February, 1826, the English erected a small factory at Armagon, under Mr Johnston, a Factor, which they slightly fortified, as a subordinate station to Masulipatam, and as a retreat, in case of need Thus originated our transactions on the coast of Coromandel The English wished to seize the Island of Bombay, and fortify it as a retreat from the native powers; the plan was not carried into effect, but now also was attention first directed to Bombay —*Bruce*

1627 —Jehangure died —*Orme*

1628 —In consequence of the oppression of the native Governor of Masulipatam, it was abandoned for a time by the factory for Armagon, which now mounted 12 pieces of cannon, and had 23 factors and soldiers —*Bruce*

1629 —Bantam reduced to an agency, dependant on Surat, this proving inconvenient in its relations to the Dutch, it was again, in five years, restored to a presidency —*Bruce Hamilton*

1630 —Armagon reinforced by 20 soldiers, and placed under the controul of Surat Off Surat, the Portuguese, with a large fleet, and 200 soldiers, made several fruitless attempts against the English shipping They also made violent efforts without success, to regain their power in the Gulf —*Bruce*

1631 —A proclamation* by Charles I enumerates, this year, the exports and imports of the Company, viz exports, "perpetuanoes and drapery, (broad cloths, &c) pewter, saffron, woollen stockings, silk stockings and gaiters, ribbands, roses edged with gold lace, beaver hats with gold and silver bands, felt hats, strong waters, knives, Spanish leather shoes, iron and looking glass," the imports were "long pepper, white pepper, white powdered sugar, preserved nutmegs and ginger preserved, myrabolums, bezoar stones, drugs of all sorts, agate beads, blood stones, musk, aloes Socatrina, ambergris, rich carpets of Persia and of Cambaya, quilts of sattin, taffety, printed calicoes, benjamin, damasks, sattins and taffaties of China, quilts of China embroidered with gold, quilts of Potania embroidered with silk, galls, worm seeds, sugar-candy, China dishes, and porcelain of all sorts "—*Bruce.*

1632 —A Firmaun obtained from the king of Golconda, for the re-establishment of the factory at Masulipatam —*Bruce*

1633 —The Emperor of Delhi ordered the Soubadar of Bengal, Kassim Khan, to "expel the (Portuguese) idolators from his dominions" In consequence, the fort at Hooghly, under Michael Rodrigues, was seized after a brave defence The Por-

* The proclamation does not mention Indigo, but about this period there was a large contract for its supply to the English, at Agra, and much loss was sustained, as it found, at that juncture, no ready sale either in Persia or England.

tuguese were spared, but their idols were destroyed This is the first act of hostility against Europeans recorded by the native historians —*Dow*

A French Company again attempted, with a fruitless effort, to colonise Madagascar —*Gleig*

1634 —On the 2nd February a Firmaun was obtained from the Mogul, for liberty to trade in BENGAL, without any other restriction, than that the English ships were to resort only to the port of Pipley *This fixes the precise period in which the English were first permitted to enter the Ganges* The President and Council at Surat, in great disgrace with the Court, having been discovered, from quarrels among themselves, to have been largely carrying on a private trade, they threw themselves on the mercy of the Court —*Bruce.*

Mr Morris, a factor from Masulipatam, sent to Bengal to avail himself of the Emperor Shaw Jehan's Firmaun he reported from Pipley, that provisions for the Company's factories on the coast, and abundance of fine white cloths, were procurable on reasonable terms —*Bruce*

1635 —A new English Company, or association, under Sir W Courten*, chartered by Charles, upon the unjust grounds that the London Company had "neglected to establish fortified factories, or seats of trade, &c" The latter petition against the infringement, and send orders to their servants in India not to assist or encourage the interlopers —*Bruce Anderson*

1636 —Courten's vessels seized and plundered two junks of Surat and Diu The Mogul authorities would not comprehend the distinction of Companies, and imprisoned the president and council of Surat for this aggression of their countrymen. Pirates also seized the opportunity of infesting the Indian seas The President released only on paying 1,70,000 rupees to the Mogul English Trade depressed at Surat, while the Dutch brought 22 large ships, with proportionate stock, to Bantam —*Bruce Mill*

1637 —Captain Weddel, formerly a Company's servant, but now a leading instrument of Courten, fixed an Agency at Goa, and at Batticolo, he obtained a grant for a factory at Acheen, and attacked and carried a fort at Canton, collecting many bales of China goods, but being obliged to quit those seas, he fixed a factory at Rajahpore, in the king of Vijiapore's dominions —*Bruce*

1638 —Armagon found unsuited to commerce —*Bruce. Hamilton*

1639 —Mr Day, one of the council, sent, in consequence, to the vicinity of St Thome, who reported Madraspatam as favorable, and that the Naig of the district offered land and every aid for building a fort So important did the situation appear, that, on their own responsibility, the council at once commenced the fortification, and it soon became surrounded with the town They named it *Fort St. George.*—*Bruce Hamilton*

1640 —The distress of Charles I made him oblige the Company to sell him 607,522 hogsheads of pepper, at 2*s* 1*d* per hogshead, for which he gave bonds and re-sold it for 1*s* 8*d* ready money The Company under great difficulty in these unsettled times Trade opened to Bussorah from Surat —*Bruce Mill*

1641 —*Fort St George* made subordinate to Bantam —*Bruce*

1642 —The first regular dispatch from Madras received at home is dated this year, and it is curious that Mr Day, who founded Fort St George, immediately went to Bengal, and that the first regular dispatch to the Court from the latter place also bears his signature, and was received the same year it is dated 3rd November, 1642, from Balasore —*Bruce*

1643 —Great competition between the Dutch and English for firmauns from the Mogul, but the commerce of the Europeans must have been looked upon as inferior by the Imperial Court, for the "profusion of presents," as appears from Surat, was only 9,000 rupees altogether.—*Bruce*

1645 —The sum of £2,294 expended hitherto on the works of Fort St. George It required at this date £2,000 farther to complete it for a garrison of 100 men This year is memorable for the curious and unexpected extension of our incipient power in Bengal Mr Gabriel Broughton, surgeon of the Hopewell, was sent for from Surat to attend the Emperor SHA'H JEHA'N His daughter was severely burned, but Mr Broughton cured the princess, and in reward for his services was granted, at his disinterested request, additional and new privileges for his countrymen in Bengal In 1646 he rendered professional benefit to prince Shujao, then in the Government of Bengal, and by his subsequent intercession, factories, on advantageous grants, were established at Balasore and Hooghly —*Bruce Hamilton Mill*

1645 —The rigid and austere manners of the republican party at home, injuring the trade of the Company, the same was officially explained to the king of Persia as the reason why silks, formerly a luxury, were now less in demand The civil wars detrimental to all sales —*Bruce.*

* Sir W Courten died immediately after this, but the charter was continued to his son

This year died Noor Jehán, Empress and favorite Sultana of Jehangír.—*Dow.*

1646 —The Dutch obtained a decided superiority in the Persian Gulf, almost ruining the Bussorah and other establishments —*Bruce*

1647 —Courten's association having established a colony at Madagascar, got into difficulties, and resorted to the desperate measure of there coining counterfeit pagodahs and rials, to the great stain of the English character in India —*Bruce*

1648 —Bengal silk introduced into the investments The communications this year, secret, and no despatches forwarded by the Company, in consequence of the danger and badness of the times

1649 —Courten's association now assumed the name of the Assada merchants—and after much discussion an union took place between them and the London Company, but although an "United Joint Stock" was formed, only two ships and £60,000 were sent to India this season The agents in Persia ascribe the deficiency in trade there, to the rumours reaching of civil commotion in England, and the "tragicall storye of the Kinge's beheadinge, which would cause the Emperor and the Persian nobles to consider the English as a base, contemptible, unworthy nation"

1650 —Captain Jeremy Blackman appointed president at Surat, with a salary of about 400 rupees per month private trade disallowed

1651 —The Dutch officer Van Rubek settled a colony at the Cape of Good Hope. Outward and homeward ships had hitherto touched here, and journals were secretly deposited at Robben Island, to give information to friends arriving The Dutch relinquished St Helena, which the English took possession of The residency at Surat had obtained enlarged privileges throughout the Mogul provinces, through the agency of a Mr Davidge, sent to the Mogul's court —*Hamilton Bruce*

1652 —Cromwell finding it expedient to employ the fleets and armies of his insecure government, declares war against the Dutch, and the question of the injuries to the Company made one of the grounds — *Mill Hume*

The indefatigable Hollanders were now rivalling the English at Bengal in their own factories.—*Bruce*

1653 —The English must have established a factory before this at Lucknow, as it is stated, to be withdrawn this year Fort St George raised to a presidency, but the garrison, on the 5th February, as per return, had only 26 soldiers The English lost four ships to the Dutch in the Gulf —*Bruce Hamilton*

1654 —Notwithstanding its new rank as a presidency, the Company had ordered the civil establishment at Fort St George to be reduced to 2 factors, and its military force to 10 soldiers! Peace signed with the Dutch, and they agreed, as per separate article, to pay the London Company £85,000 for losses at the Eastward, and £3 615 to the heirs of Captain Towerson and others, the sufferers at Amboyna The island of Palaroon was also restored —*Hamilton Bruce*

1655 —The Persian trade suspended, and that of Fort St George at a stand, principally from the opposition of the Dutch There were difficulties also from fresh rivals, called "Merchant Adventurers," who, on petitioning for free trade, were at first patronized by Cromwell —*Bruce Mill*

The following extracted statement of the Company's "United Joint Stock" may not be uninteresting, it was dated 1st September, 1655 —*Bruce*

DEBIT	£	s	d
Salaries of the Merchants in India for 5 years, at £2,066 2 8	9,641	19	4
Mariners' wages for like term,	4,000	0	0
Two years' expenses in Surat,	7,600	0	0
" Coast of Coromandel,	5,000	0	0
" Bantam,	2,800	0	0
Salary of Merchants on the three Brothers,	230	0	0
	29,271	19	4

CREDIT			
Balance of estate in England,	82,053	12	2
,, remain in Surat and Subordinate Factories,	32,829	5	0
At Madraspatam and factories on that Coast,	22,671	11	3
At Bantam and Subordinates,	26,451	10	7
Voyage to Palaroon,	1,051	8	0
Fort St George and customs,	6,000	0	0
Three houses in Agra, Ahmedabad, and Lucknow, with the garden at Surat,	1,932	0	0
Five houses at Bantam, Japara, Macassar, Jambee, and Banger Masseen,	3 600	0	0
Two ships, a sloop, and pinnace,	1,000	0	0
	1,85,589	7	0

1656 —Reductions in all the establishments abroad, supernumeraries sent to England Columbo taken from the Portuguese by the Dutch, who also, this year, established Chinsurah as a factory —*Bruce E I Chron Hamilton*

1657.—The London Company suffered much from the intrigues of rivals At last Cromwell failing to open a free trade with advantage to the country, on the opinion and advice of his council of state "that the trade of East India be managed by a United Joint Stock, exclusive of all others," consented to grant a new Charter, on the 10th February, and took the Company under his especial protection From this year the Company attempted to settle permanently at St Helena —*Bruce Mill.*

1658 —The Bengal establishments ordered from home to be continued under the presidency of Fort St George, the agencies at Cossim Bazar, Ballasore, and Patna to be subordinate to the factory at Hoogly Surat the chief presidency, new regulations made for the servants in India. The emperor, Shah Jehan, being afflicted with mortal illness, his four sons contended for the succession Aurangzebe's superior abilities and cunning prevailed. The Dutch completely expelled the Portuguese from Ceylon —*Bruce Dow*

1659 —In consequence of the new charter, the English trade revived in India Aurangzebe became emperor, Shah Jehan lived some years afterwards, confined at Agra —*Bruce Dow*

1660 —The uncertainty of public affairs in England, after Cromwell's death, prevented the Company from making this year any exertions at home A China Company attempted in France —*Bruce E I Chron*

1661 —The embarrassments of the Company's funds at the commencement of this year again so great, it was resolved to relinquish many out stations in India, and instructions were issued to this effect, but on the 3rd April, Charles II granted a new charter "for ever," with considerable privileges The Company were authorized to make peace and war with any prince or people not Christians, erect fortifications, maintain armies, send home unlicensed Englishmen, and administer justice as a sovereign state The Portuguese power in the East now reduced to the possession of Goa and Diu, the Dutch having expelled them from their ports on the coast of Malabar The Island of Bombay ceded to the English by Portugal, as a marriage portion to Charles II but its final possession withheld for four years, on various pretences —*Bruce Gleig Mill E I Chron*

1662 —The Earl of Marlborough and Sir Abraham Shipman sent by the king with troops to take possession of Bombay The Viceroy refused to deliver up the place On the junction of the Assada and the East India Companies, the factories in Africa had become the property of the latter They were Fort Cormantine, Fort Wyamba, Cape Coast Castle, and Benin, but this year the king obliged the whole to be handed over to the Royal African Company "African Labourers" had early been sent to the Indian Factories as servants and guards, their descendants were subsequently a constituent part of the military guards at the Company's principal establishments Sir Geo Oxinden, an able man, sent out as "President and chief director of Surat and all other factories," in the north parts of India He received however a salary only of 250 rupees per mensem, and a yearly gratuity of 2,000 rupees as a compensation for private trade —*Bruce*

1663 —Factories which had been attempted at Patna, Cossim Bazar, and Ballasore ordered to be discontinued, and purchases and sales made only at Hooghly Major F Willoughby appointed from home, Governor of the Island of Palaroon, at a salary of £50 per annum, for five years —*Bruce*

1664 —A French East India Company formed under the minister Colbert —*E I Chron*

In January, the town of Surat pillaged by Sevajee, the founder of the Mahrattas Sir George Oxinden bravely defended the English factory, and the Mogul granted an exemption from customs for one year, in token of his admiration —*Bruce*

Sir A Shipman, the deputed Governor of Bombay, perished by disease at Angedevah, with 300 soldiers, the Portuguese refusing to comply with the treaty, and the English factory of Surat afraid to admit armed men, from apprehension of the Mogul's displeasure About 100 men only survived of four companies, when the Portuguese finally gave up Bombay, but without any of its dependencies —*Bruce*

1665 —The Mogul, jealous of the possession of Bombay by the king, but unable to comprehend the distinct characters of the King's and Company's establishment

Mr Foxcroft sent out as president at Fort St George, when the incumbent, Sir Edward Winter, seized his intended successor on some pretence of treasonable speeches, and contumaciously held the fort for nearly two years —*Bruce*

The deposed emperor Shah Jehan died in confinement at Agra —*Fraser*

1666 —By the fire in London the Company's saltpetre and pepper ware-houses, then under the exchange, destroyed Tea imported in England from Holland by the Lords Arlington and Ossery, it sold for 60s per lb, but two years previous, small quantities had reached, as presents to the king —*Bruce E I Chron*

Sir Gervase Lucas sent out to Bombay as Governor, by the King, he imprisoned the acting Governor, Mr Cooke, Secretary to the late Sir A Shipman, for extortion and peculation —*Bruce*

1667 —Palaroon ceded to the Dutch by the treaty of Breda —*Anderson*

Aurangzebe, in his wars with Persia and Sevajee, began to value European military talent, and demanded from Surat some artillery men and engineers for his armies The request was evaded —*Bruce*

1668 —Bombay ceded by the king (23rd September) to the Company Its revenues, as per return on cession, were £2,833 per annum The two companies then stationed there, of H M soldiers, volunteered into the Company's service, and thus formed its first military establishment at Bombay*

This year Tea is first mentioned in the Company's dispatches A letter to Bantam from the Court, thus orders the agent, "*send home by these ships 100lb weight of the best tey, that you can gett*"

Mr Cooke, ex-Governor of Bombay, who had escaped to Goa, associated himself with Jesuits, and endeavoured to assemble a force to repossess himself of Bombay proclaimed a traitor The revenue of Bombay more than doubled itself, under the Company the first year —*Bruce Hamilton*

1669 —Sir G Oxinden appointed from home "Governor and Commander-in-Chief" at Bombay, but he died on 14th July of the preceding year

This year also were received orders from home, to institute a pilot establishment at Hoogly, to build a pinnace to be manned with intelligent seamen from the Indiamen, to take charge of the shipping up and down* Thus originated the Bengal Pilot Service

St Helena now regularly colonised under Captain Stringer, appointed Governor, the Captains of Indiamen touching there to act as members of his council There were 22 regular Indiamen then in the service, as appears by a list of those entitled to act as members of the St Helena council

The military regulations in use, to controul the small force at Bombay, founded on authority vested in the Company, by charter, to levy, embody, and entertain forces, &c Their military establishments were thus upheld for years, until king's troops, serving in India, questioned their competency to hold courts martial —*Bruce*

1670 —The English trade considerably increased, as apparent from the fact of the outward investment of bullion and goods being £305,500 But the Dutch influence predominated, their ships from Europe this season were 52 in number —*Mill*

1671 —Bombay rising, in consequence, a mint ordered, and the building of two ships and two brigantines commenced upon Captain Herman Blake, who came round viâ Persia, appointed engineer and surveyor general, the first of that rank

Surat again attacked, but well defended its situation now deemed precarious for a presidency —*Bruce*

1672 —The presidency at Surat, in a letter on military subjects, recommended that the "principle of seniority must be observed in adjusting the rank of the officers at Bombay"—*Bruce*

The French capture St Thome, it was retaken two years subsequently by the Dutch and king of Golconda, when the French purchased the village and district of Pondicherry, which they fortified —*E I Chron*

The oldest record of the Company extant in 1792, at the presidency of Fort St George, bears the date of this year It is a letter from Bantam, dated 1st June Its recorded "abstract" was as follows

"Mentions that the Company had ordered Factories to be established at

"Tonkeen,	whither was sent Mr	W Gifford in the Zant
"Tywan	do	David Stephens, Experiment,
"Japan,	do	Symon Delboe†, Return "—*Dalrymple's Orient Rep*

The Court recommended the Council, for the first time, at Bantam, to open a direct trade to China, and, at the same time, with reference to the attempt above alluded to, settle at Tonkeen, Tywan, and Japan, ordered their agents "to wear dresses of English cloth, with gold and silver lace, that their appearance might convey to the emperor and his officers impressions of their rank"—*Bruce*

1673 —St Helena having been several times taken and retaken, recaptured this year by a naval force from the Dutch, and regranted by charter to the English Company —*E I Chron*

* Derivation of Bombay doubtful, said to be from Buon Bahia, Portuguese, also from Bomba Devi, a Hindoo goddess

† Mr Delboe failed, it seems, at Japan, and was ordered away. The English flag had the St George's cross, and thus somewhat resembled the Portuguese flag, which nation was hateful to the Japanese The alliance by marriage with the princess of Portugal was also given as another cause, but Mr Delboe returning by way of Macao, negotiated for permission to establish a factory there, and probably to this incident may be traced the origin of the present China Trade —*Bruce*

The outward India fleet divided into three squadrons, under an "Admiral, Vice Admiral, and Rear Admiral"

Englishmen sent to Bengal to improve the silks, and dye the green and black colours "but under an obligation to keep their art secret from the natives"

The Dutch fleet so powerful off Bombay and Surat, that 500 Rajpoots were sent for to defend these places The French had taken Trincomalee from the Dutch, who now recovered it by a force from Batavia —*Bruce*

1674 —Bombay, mounted 100 pieces of cannon —*Bruce*

1675 —The Court write out that Lahore indigo was undersold by West-India indigo, and that less lac would be required from "the new practice of using wafers instead of wax"—*Bruce*

Mr Delboe formed a factory at Siam —*Dalrymple*

The Court, 12th July, framed the following regulations for their civil service. "In the advancement of our apprentices, we direct that after they have served the first five yeares they shall have £10 per annum for the two last yeares, and having served those two yeares, to be entertayned one yeare longer as Writers, and have Writer's salary, and having served that yeare, to enter into the degree of factors, which otherwise would have been ten yeares And knowing that a distinction of titles is in many respects necessary we do order, that when the apprentices have served their times, they be stiled *Writers*, and when the Writers have served their times, they be stiled *Factors* and Factors having served their times, to be stiled *Merchants*, and Merchants having served their times, to be stiled *Senior Merchants*"—*Bruce*

Civil Servants were to apply themselves also to acquire a knowledge of military duties, so that in case of attack, or being better qualified for military than civil duties, they might receive commissions and have military pay —*Bruce*

1676 —The king's letters patent, dated 5th October, (28th of Charles II,) authorised a mint at Bombay to coin "Rupees Pice, and Budgrooks"—*Bruce*

The Dutch had 6,720 fighting men in Batavia, exclusive of Civilians —*E I Chron*

The new charter now granted enabled the English Company to double their stock, and raise it to £739,782 —*Anderson*

The celebrated Dr Edmund Halley, by order of the king, sent out in a Company's ship to remain two years at St Helena, for perfecting the knowledge of Astronomy —*Bruce*

The pay of an European soldier at Madras, in full for provisions and necessaries of every kind, was 21 shillings per month —*Hamilton*

1677 —The Company's agent at Bantam, Mr White, and the principal servants of the agency, assassinated by the Javanese, on the 21st April, 1677, and the factory so ruined by the death of the seniors, that its transactions closed, and no accounts were conveyed to the Court —*Bruce*

Mr. Aungier, President at Surat, died 30th June, 1677 —*Bruce*

1678 —A Judge appointed for the Island of Bombay —*Bruce*

A troop of Horse ordered to be embodied at Bombay, the pay of the Captain not to exceed £120 per annum —*Bruce*

Sheyntham Master, Esq succeeded Sir W Langhorne as Governor of Madras —*E I Chron*

1679 —The Court finding Bombay too expensive, sent out orders for retrenchments in the military charges Surat also to be reduced to an agency, but their servants were unable to obey the Court, from the unsettled state of affairs, and the wars between Sevajee and the Mogul —*Bruce*

1680 —Captain Keigwin sent to command the military at Bombay with a small reinforcement, he was to have six shillings per diem and to be 3rd in council Mr. Smith sent out as assay master on a salary of £60 per annum

Mr Gyfford appointed agent and governor at Fort St George —*Bruce.*

1681 —Surat (such the shifting state of the Company's domestic affairs at this period) again ordered by the Court to resume the rank of a presidency The court also revoked the order for Captain Keigwin's having a seat in council. Mr John Child, brother of Sir Josiah, the Governor (now called chairman) of the East India Company, sent out as president at Surat —*Bruce*

Bengal first made separate from Madras Mr Hedges, a member of their committees, (now called director,) sent out with special powers as "agent and governor of their affairs in the Bay of Bengal, and of the factories subordinate to it, or Cossim Bazar, Patna, Balasore, Malda, and Dacca A corporal of approved fidelity and courage, with twenty soldiers, to be a guard to the agent's person, and the factory at Hooghly, and to act against interlopers" Such the foundation of our power in Bengal, in the sequel the centre of commerce and the seat of government in India —*Bruce*

The king of Bantam sent an embassy to England —*Bruce.*

1682 —The English Levant Company, deprived of their former portion of the Indian trade, endeavoured to oppose the East India Company, but in April, the

king and privy council rejected their scheme Persian goods at this time comprehended silks of all sorts, red and black caramania wool, rhubarb and drugs —*Bruce*

The Court ordered the institution of a bank at Madras So violent the feeling against interlopers, it was enjoined that no Company's servant should intermarry with their families

Opium first ordered from Bengal, Bantam captured by the Dutch, and the king expelled This gave a finishing blow to our position in that quarter —*Bruce*

1683 —By letters patent, dated 9th August, the king authorised the Company to exercise admiralty jurisdiction within their limits The appointed judge, Dr St John, to have £200 per annum, and allowances at the Company's table

Two companies of Rajpoots ordered to be embodied at Bombay

Two English fleets sent out to redress the injuries to the Persian and Bantam trade

Mr Hedges dismissed from Bengal for misconduct, and Mr Gyfford, who was sent to Madras, (now constituted a presidency,) directed to proceed to take charge also of Bengal with an escort of a Company, composed of seamen from Indiamen A factory established at Tillicherry

A serious insurrection at Bombay, on the 27th December, the fort was seized by the troops under Captain Keigwin, in consequence of retrenchments and reductions, and held in the king's name, renouncing the authority of the Company It was forcibly retained for nearly two years, and then given up, the insurgents having stipulated for pardon * —*Bruce*

The Company had to put to death some rebels at St Helena, but on the petition of the widows, to the House of Commons, the act was declared illegal and arbitrary

India stock sold this year from 360 to 500 per cent advance —*Chron Table*

Factories established at Cuddalore and Commerce in the Gingee country —*Bruce*

1684 —The English formally expelled from Java, and with the Company's property, the establishments went to the Malabar coast

Sir John Child of Surat made a baronet, and appointed the following year, Captain General and Admiral in India Sir John Wyborne, Vice-Admiral and Deputy Governor of Bombay, with a salary of £250 per annum —*Bruce*

1685 —Seat of government ordered to be transferred from Surat to Bombay The Madras government having fixed an agent and council at Priaman, on the Island of Sumatra, the Court ordered the station to be supported and fortified Also ordered an uninhabited island in the Ganges to be obtained and fortified, while the works at Fort St George were to be strengthened The factory at Masulipatam to be dissolved —*Bruce*

1686 —Ten ships of war under Vice-Admiral Nicolson sent out to oppose the native powers On its arrival, the agent in Bengal (Mr Charnock) ordered to act as Admiral and Commander-in-Chief, six complete companies were on board without Captains, it being intended that the members in council in Bengal should act in that capacity The force to disembark at Chittagong, seize and fortify it, establish a mint, and five per cent customs to be levied on the inhabitants It was wished to intimidate the Mogul and his officers, who had been arbitrary towards the factories The factory at Hoogly was oppressed, and surrounded by parties of native horse and foot Surat also had been plundered by Sevajee, and the Company's possession injured by the wars of the Mogul and Mahrattas —*Bruce*

Sir John Child appointed what is now called Governor General, with full authority, in India, and discretionary powers to make war or peace with the Mogul, ordered to proceed to Madras and Bengal, Mr Zenzan to act in his absence at Surat, or rather Bombay A company from a British regiment of the line sent out under a Captain Clifton, who as well as all Captains of Infantry was to have seat in council —*Bruce*

On the 28th October, a part of the fleet under Admiral Nicolson having arrived in Bengal, an affray took place at Hooghly between three English soldiers and some of the Nawab's peons, more soldiers joined, and at last the entire force came in contact, and after a severe action, the Nawab's troops were defeated with loss Hooghly was cannonaded and 500 houses burnt Subsequent to this useless affair, the agent and

* The officers both in rank and pay had been placed lower, and the militia so much reduced, that all authority of the officers over the men had ceased Captain Keigwin applied for subsistence money, there being no Company's table as formerly and after much discussion the sum of 20 Rs per month was granted, pending a reference to the Court The Court "unhappily ordered the half allowance for diet to Captain Keigwin to be refunded, and this parsimonious measure produced the discontents and probably the revolt of the garrison" Dr St John, in his report however to the King and Council, stated, that the rebellion arose from the depredations and crimes of the interlopers, with whom Captain Keigwin was intimately connected although he used the King's name his motives were predatory and rebellious —*Bruce*

council quitted their open factory at Hooghly on the 20th December 1686, and retired to Chutanuttee, (afterwards Calcutta,) waiting a negociation with the Mogul The shipping, as the whole arrived, wanting repairs, it was deemed unadvisable to attempt the original object of the expedition, the reduction of Chittagong —*Bruce. Stewart*

1687 —A settlement made at Bencoolen, and a firmaun obtained for the sole government of it A fortification called York fort built —*Bruce*

Bombay constituted a regency with further powers Sir J Wyborne and Mr Zenzan dismissed for disputing Sir John Child's authority To give dignity to the Governor General he was directed to be attended always with a life guard of 50 grenadiers, commanded by a Captain Madras also constituted a regency, with a corporation, under His Majesty's Charter, consisting of a Mayor and ten Aldermen, (three to be Company's servants and seven to be natives,) to be justices of the peace, and "to wear thin scarlet gowns" One hundred and twenty burgesses to be appointed "to wear black silk gowns"—*Bruce*

The Court disapproved of the measures of Mr Charnock at Bengal, and recommended more active hostility Sir John Child at Bombay however took most able measures at this difficult juncture, and determined to uphold the British name and influence in India, notwithstanding the disastrous appearances at Bengal, where our remote factories were seized, and the English troops forced to fortify themselves at Ingellee Captain Heath had meanwhile been dispatched from home with a fresh force —*Bruce*

1688 —A Post Office ordered at Bombay

Captain Heath arriving with the reinforcement in October, unwisely recommenced hostilities in Bengal, he plundered and burnt Balasore, the Mogul Governor seized the English at the factory, and sent them prisoners up the country —*Bruce*

1689 —Sir John Child, after capturing some native vessels at Surat, and bravely opposing the Mogul power amidst many embarrassing difficulties, died at Bombay on the 4th February, 1689 His successor, Mr Harris, being at that time a prisoner at Surat, the Company's affairs became more alarming submission was made to the Mogul, and a firmaun, or rather pardon, issued as criminals A heavy fine was exacted, on payment of which, the Siddee's fleet and army withdrew from before Bombay

In the mean time, at Bengal, Captain Heath sailed towards Chittagong, which for some unexplained reason, he failed to attack, he then proceeded to Arracan, where he offered to assist a revolted chief against its King, but without waiting for the reply, set off for Madras, where his fleet, having on board the agent and council of Bengal, and the Company's effects, arrived on the 4th March

The factories at Vizagapatam and Masulipatam were seized by the Mogul, and Mr Stables, chief of the former, and four factors, put to death

At home the Commons recommended the establishment of a new Company, the present one being little in favor with the King, parliament, or people

It is singular that the Court, during these humiliating reverses abroad, had written out to their servants to obtain dominion, or, as the orders say, to increase revenue, "to make us a nation in India" They had found the insufficiency of firmauns, and were desirous to assume independence and power —*Bruce Stewart*

1690 —The Mogul authorities invite Mr Charnock and factory back again to Bengal Mr Harris proclaimed Governor of Bombay, but with no general power as his predecessor Mr Weldon appointed Deputy Governor The interlopers in England associated themselves, and made every exertion to obtain a separate charter —*Bruce*

1691.—A new firmaun obtained by Mr Charnock in Bengal He had previously re-settled the establishment at Chutanuttee, protected by 100 soldiers. Ulabariah had been before tried, but found unsuited —*Bruce*

1692 —Mr Charnock died 10th January, much respected by many. He was succeeded by Mr Ellis —*Bruce*

Mr Yale dismissed at Madras Mr Nathaniel Higgenson succeeded October 13th, to the government The latter was superceded in December by Sir J Goldesborough, who was appointed "Commissary General and Supervisor" of the Company's affairs in India —*Bruce.*

An Attorney General sent to Madras for the better regulation of the Company's interests —*Bruce*

At Bombay European pirates had caused much inconvenience to the trade, and irritation on the part of the Mogul —*Bruce*

Tegnapatam had been purchased from the Ram Rajah, and fortified—was called Fort St David —*Bruce*

1693 —The Company had expended at home £90,000 in influencing the Privy Council to renew the charter —*Bruce. Mill*

A mutiny took place at St Helena, consequent to the temporary relaxation of martial law as directed from home The insurgents killed the Governor, and disarmed and imprisoned the soldiers of the garrison Captain Keeling sent out with a force to reduce the island to obedience —*Bruce*

A new charter granted on the 7th October (5th William and Mary) renewing that of Elizabeth, with some modified and some extended privileges —*Bruce*

1694 —Bengal, after Mr Charnock's death, again made subordinate to Madras. Sir J Goldesborough, on his tour of inspection as Commissary General, dissented from the high eulogium elsewhere passed on the late Mr Charnock. He describes him as having been irresolute and indolent He superseded his successor Mr Ellis, and appointed the chief at Dacca, Mr Eyre, to be agent He also removed Captain Hill the military commandant, and sent him to Madras In the midst of several spirited reforms, Sir J Goldesborough died, and was succeeded by Sir J Gayer, from Bombay —*Bruce*

During this year a Dr Blackwall, a medical officer, for a bribe agreed to deliver up Fort St David to the Mogul General This treason was fortunately discovered, and Blackwall seized and punished —*Hamsteer*

A letter from the Court stated that "every recruit sent from England cost £30"

A fortified settlement was made from Bombay at Anjengo —*Bruce*

1695 —The Parliament of Scotland, on the 26th June, empowered the King (as King of Scotland) to constitute a Scottish Company The Governor of the London Company, (Chairman) Sir T Cook committed by the commons to the Tower, for refusing to give an account of the money distributed in bribes —*Bruce*

The homeward bound fleet captured by the French —*Ditto*

A large privateer having seized a Mogul ship, the Surat factory was seized upon, and liberated only after much difficulty on the following year —*Ditto*

1696 —Much distress occasioned by the interlopers the crews of two Indiamen, stated to have been seduced by them, they rose and murdered their officers, and turned pirates—such the extent of the contagion, that the Governor at Bombay could not man a boat, for fear that the crew would desert, and so low the state of the garrison, there was not a trust-worthy soldier for promotion to the rank of sergeant or corporal —*Bruce*

The trade at Madras also similarly crippled, but its revenues and taxes said to have amounted to 40 000 Pagodahs —*Bruce*

1697 – Mr Pitt appointed Governor at Madras, to be for 12 months independent of the Commissary General, Sir J Gayer —*Bruce*

A rebellion of a Rajah Subah Sing having broken out in Bengal, it gave an opening to the French, Dutch, and English factories to erect fortifications But for this, so jealous were the authorities, it would not have been permitted —*Stewart*

A new and favorable firmaun obtained from the Emperor of Persia —*Bruce*

1698 —An act passed 10th William, cap 44, incorporating a new "general society trading to the East Indies" It was called the English East India Company, in contra distinction to the old or London Company

On the passing of this act for another Company, the old corporation exerted itself, '*with a true Roman courage*," as one of their mercantile letters states, in advising their servants of an extensive equipment They dismissed the President of Surat, Mr Annesley, (Mr Colt to succeed,) and permitted their establishments, as an encouragement, to trade in jewels. At Madras all former factories or stations were to be resumed, so as to exclude the new Company Bengal was again made independent of Fort St George

Captain Kyd, the notorious pirate, formed his ships into squadrons, and fairly blockaded the coasts in consequence, the Mogul, who would not understand the distinction between this outlaw and the other English, put the whole trade under an embargo

The new English Company sent Agents to India, chiefly men who had been dismissed with disgrace, from the London Company Sir William Norris was appointed by the King's Commission, an Ambassador to the Mogul, to solicit privileges for the new association —*Bruce*

1699 —Sir Edward Littleton was appointed President and Consul, in Bengal, of the new Company, he was also empowered to act as King's Consul He was ordered to report on all the plans and trade of the London Company, to obtain from the dismissed servants all possible information, copies of firmauns, &c Sir Nicholas Waite was appointed their President, at Surat The new Company, however, at this early stage, made approaches for an union between the rivals —*Bruce*

The Mogul Prince Azeem Ooshan granted in 1698-99, the adjacent small villages of Chutanuttee, Govindpore, and Calicotta, (dedicated to the goddess Calee,) the whole soon taking the name of the last, or CALCUTTA Sir Charles Eyre, recently knighted, an old servant, was again sent to India, to be principal servant in Bengal, which they now constituted a presidency The instructions to Sir C Eyre, dated

December, 1699, directed him to increase the fortifications, to build a strong fort of pentagonal form, to be called *Fort William* —*Stewart Bruce*

1700 —The London Company obtained an act, on the 11th April, for continuance of their corporation, and the King recommended an union of the two interests

In India, the new Company's servants insulted and committed violence on the flag and factory of the London Company, at Surat, which was resented by the Mogul Governor, as an affront to himself The trade was much injured every where

At Madras, disputes took place between *Consul* Pitt, and *Governor* Pitt, the rival Governors of the two companies, in fact, throughout India, as might be expected, the hostile rivalry of both companies ruined the trade for all concerned The new Company made some progress, in opening a trade with China, though it failed eventually —*Bruce*

1701 —The disputes of the old and new Company most perplexing and ruinous. The native rulers took bribes from both parties The Ambassador, Sir W. Norris, seized two of the Council of the London Company, at Surat, and sent them to the Mogul Governor, "with their hands tied" Sir John Gayer, the President, subsequently was seized by the Emperor's order, obtained through misrepresentation, and with the other members of Council, "barbarously used"

A Committee appointed at home, to endeavour to effect an union between the Companies

Sir W Norris had an audience of the Mogul, on the 28th April, 1701 He was attended by a splendid European cavalcade, with ordnance, and many followers

Kyd, the pirate, taken, and hanged at home He had been supported by some noblemen, Lord Somers and Oxford, who were impeached —*Bruce E I Chron*

1702 —In January of this year, the preliminaries of the union were settled

Bengal improved, under the auspices of the Mogul Prince Azeem Ooshan The instructions from home directed the Civil Servants to proceed themselves with small stocks, in the Aurungs, and bargain themselves "without the affectation of pomp and grandeur, *and as merchants ought to do*"

The ambassador abruptly broke off the negotiation at the Mogul's Court, and departed for Surat, which circumstance, with the depredations of the pirates, so incensed the Emperor, that he ordered all the English in his dominions to be seized, imprisoned, and their effects confiscated All the subordinate agencies suffered in consequence, but Calcutta by this time was too strong to be thus dealt with

In the deed of union by which the two Companies were hereafter to take the name of "the united Company of merchants trading to the East Indies," the factories of the old Company are thus detailed

Bombay Surat, Swally, Broach, Ahmedabad, Agra, and Lucknow

On the Malabar Coast the forts and factories of Carwar, Tillichery, Anjengo, and Calicut

Persia the factories of Gombroon, Shiraz, and Ispahan

Fort St George, Madras, Fort St David, Cuddalore, Porto Novo, Pettipolce, Masulipatam, Madapollam, and Vizagapatam The settlements on the Island of Sumatra, or York Fort, Bencoolen, Indrapore, Iyamong, Sellebar, also the factory of Tonquin in Cochin China

Fort William Chuttanuttee, (*Calcutta* not yet specified it seems,) Balasore, Cossim Bazar, Dacca, Hoogly, Malda, Rajhmahl, and Patna, also the Island of St Helena

The new Company specify in the deed only the following settlements A factory at Surat, at Masulipatam, at Madapollam, and on the Islands of Borneo and Pulo Condore

The Indenture farther sets forth as stock

Old Company,	£315,000	0	0
New Company,	1,662,000	0	0
Separate Trades,	23,000	0	0
Total	£2,000,000	0	0 —*Bruce*

1703 —On the union above referred to, Sir John Gayer was appointed by the General Court, "General and Governor" of Bombay, and Sir Nicholas Waite's commission, under the English Company, of Consul, revoked President Pitt was confirmed at Madras, and consul Pitt made chief authority at Fort St David, his commission of consul being cancelled President Beard confirmed at Bengal, though a commission of eight were appointed to investigate and control all proceedings at Fort William There was still much dissension between the late rival authorities throughout India, and much difficulty in the attempts at adjustment —*Bruce*

1704.—Sir John Gayer having been imprisoned by the Mogul authorities, Sir Nicholas Waite, who was appointed to succeed in case of vacancy, basely contrived

to prolong his detention, by bribes and iniquitous misrepresentations to the natives. The disputes between the rival servants still kept up in adjusting accounts and outstanding commercial transactions —*Bruce*

1705 —The treachery of Sir Nicholas Waite fully discovered by the disclosure of his instrument Rustum, a native broker, but in defiance of orders from the General Court, he retained authority, and Sir J Gayer was still in confinement at Surat —*Bruce*

1706 —At Bengal the affairs were becoming settled, Sir Edward Littleton, the late president of the new Company, having been recalled, and Mr President Beard having died Messrs Hedges and Sheldon were appointed jointly to succeed and bring up the accounts of the two Companies —*Bruce*

1707 —Aurungzebe died on the 20th February His revenues were equal to 38 millions sterling To shew the general fear entertained of the imperial power by foreigners then in India, it was thought necessary to announce it to the Court in an allegory Thus in a letter dated 1st March, 1707, Sir J Gayer (previously released) represented, "that the sun of this hemisphere had set, and that the star of the *second* magnitude being under his meridian had taken his place, but it was feared the star of the *first* magnitude, though under a remoter meridian, would struggle to exalt itself," thus conveying the news of the Emperor's demise, and of the disputes between his sons for the succession —*Bruce*

The works at Fort William were by this time respectable, with a number of guns, and 125 soldiers, of whom half were Europeans many natives began to settle in its vicinity —*Bruce*

Madras at this period had only 300 European settlers, of whom 200 were military —*Hamilton*

1708 —The time drawing on far to final incorporation of the accounts and affairs of the two Companies, which was ordered for this year, their feelings and interests became identified by a sudden demand from H M 's government for £2 200,000, without interest All their closing dissentions gave way to avert the common danger, and on the 29th September, 1708, a final award and charter was adopted By this act, 6 Anne, cap 17, the privileges were to be extended to March, 1726 At this juncture, the number of directors, their duties, committees, mode of sales, warehousing, and home establishments were adjusted, and have remained with little alteration on the same footing to the present day

Thus were closed the transactions of the English in establishing a trade with India, until the act of legislature confirming the corporate capacity of THE UNITED COMPANY OF MERCHANTS TRADING TO THE EAST INDIES —*Bruce*

1709 —It may be gathered from the following circumstance, how deeply the contentions of the two rival Companies before their union had injured the entire trade, and the prosperity of the English in India —The King of Persia just before this period wished to send an embassy to Bombay, but ashamed to betray the weakness of its defences and garrison, and the general poverty of the place, the English authorities refused to admit it —*Hamilton*

Thomas Pitt, Esq Governor of Madras, was succeeded (30th of September) by Gulston Addison, Esq brother of the celebrated Addison His authority lasted but a month, as Edmund Montague, Esq relieved him provisionally on the 28th October While he again was superseded on the 14th November by William Fraser, Esq —*E I Chronologist*

The Company's grant of perpetuity by writ of privy seal was issued 22nd April —*Folio state papers Do*

The exports of this year were £168,357, half as much again as those of the preceding season —*Mill*

1710 —Sadut Ally Khan commenced his government of the Carnatic —*Orme E I Chronologist*

1711 —William Fraser, Esq Governor of Madras, was succeeded (July 22nd) by Edward Harrison, Esq —*E I Chron*

1712 —Shah Aulum, who had succeeded Aurungzebe, died Azeem Ooshan, the patron of the English in Bengal, lost his life in the struggle for the succession, end Feroksere, his son, afterwards gained the throne —*Mill*

1773 —The Bengal Presidency apply home for permission to send an Embassy to Delhi —*Mill*

1714 —Charles VI, Emperor of Germany, granted commissions to ships to trade to the East Indies He afterwards founded the Ostend Company, so injurious to the interests of the English and Dutch —*Anderson's Hist of Com East India Chron*

Fort Marlborough built near Bencoolen —*Grant*

1715 —Messrs Surman and Stephenson, the ablest factors of Bengal, also an Armenian, as Interpreter, and Mr W Hamilton, as Surgeon, were sent on an Embassy to Delhi, where they arrived on the 8th July The Emperor Feroksere,

being sick, and prevented from marrying a Rajpoot princess, was cured by Mr Hamilton, and the Surgeon, with the same disinterested zeal, as shown by Dr Boughton on a former occasion, used his influence only to procure the object of the Embassy, and obtain more favorable terms for the United Company —*Stewart's Hist of Bengal*

The French Company, though their affairs were desperate, obtained a renewal for ten years --*Raynal East India Chron*

1716 —The marriage of the Mogul Emperor intervening, the Embassy could not deliver their petition until January of this year —*Mill*

The Governor of the French settlement of Pondicherry announced to the British, at Fort St David, that there were off the Malabar Coast, two 40-gun vessels, under imperial colours from Ostend The Ostend Company were not regularly chartered till some years afterwards —*Grant*

1717 —The objects of the Embassy of 1715 attained in July Thirty-four favorable grants or patents were issued by the Mogul, and the English allowed to purchase 37 towns contiguous to Calcutta The privileges now granted were long considered as constituting the great charter of the English in India —*Rennell's Memoirs Grant*

1718 —The Ex-Sultan Guelemot, of Anaksoongay, in Sumatra, raising a force, destroyed the town of Ippoe, with the British Resident and all his people —*Grant*

1719 —A native force obliged the English to evacuate Fort Marlborough, and take refuge on their ships —*Grant*

Feroksere deposed and murdered four successors appeared and passed away in as many months —*Orme*

1720 —The French took possession of the island, called by the Dutch, Mauritius, who possessed it for a short time, but abandoned it for the Cape of Good Hope The French peopled it from the Isle of Bourbon, and named it the Isle of France —*Raynal East India Chron*

Jos Collet Esq, Governor of Madras, succeeded by Francis Hastings, Esq.—*East India Chron*

1721 —The natives of the Island of Sumatra, fearing the Dutch more than the English, whom they had expelled, allowed the latter, in the hope of their counteracting the intriguing activity of the Dutch, to resume their Sumatran establishments The English now remained at peace for many years, increasing in prosperity and in influence over the natives —*Grant*

Francis Hastings, Esq, Governor at Madras, succeeded by Nat Elwick, Esq —*East India Chron*

1722 —The Emperor granted this year a regular Charter to the "Ostend East India Company," to the great discontent of all the European maritime powers, except Spain* —*Salmon and others East India Chron*

1723 —The Ostend Company had fully established themselves, under the Nawaub's patronage, at Bhany Bazar, 15 miles above Calcutta, at the eastern side of the river --*Stewart East India Chronologist*

1724 —Shuja Addeen Khan, afterwards Nawaub of Bengal, though of liberal disposition, about this period, was incensed against the English, in consequence of their public servants taking advantage of the late grants of the Emperor, and insisting upon passing their own private trade free of duty The Foujdar of Hooghly, stopped a boat laden with silks, upon which a party of soldiers was dispatched from Calcutta, and forcibly released the boat The English were finally obliged to pay a heavy fine, and apologise for this act —*Mill Sketches of Bengal*

1725 —Nathaniel Elwick, Esq, Governor of Madras, is succeeded by James Macrae, Esq – *East India Chron*

During the quinquennial period, from the year 1720 to 1725, the English had exported to India, £578,155 of goods, and 2,770,238 of bullion —*Grant*

1726.—By letters patent, dated August, George I, complied with the petition of the United East India Company, and established, at the three Presidencies of Madras, Bombay, and Calcutta, regular Courts of Record, for the discharge of both Civil and Criminal Justice The Courts to consist of a Mayor and nine Aldermen, of whom seven were to be natural born subjects The Mayor to be elected by the Aldermen, and to continue in power for one year Appeals allowed to the Governor in Council The Governors and Senior Members created justices of the Peace, and empowered to hold quarter sessions —*Grant*

So flourishing were the affairs of the Ostend Company, in spite of the opposition and edicts of the rival nations, that this year, one-third of the original subscription of the proprietors, which remained due, was paid up from the gains alone of the trade —*Mill*

The East India House erected in Leadenhall-street, London —*E I. Chron.*

* Mill states, that the Charter was granted in August, 1723.

1727 —So much had the country trade increased, in ten years, after the patents or grants obtained by the Embassy to the Emperor, in 1717, that the private tonnage employed in Bengal, by this time amounted to 10,000 tons Many of the Company's Servants were concerned in this trade —*Grant Mill*

The Court at Vienna, after much hesitation, at length yielded to the combination of the European powers, against the Ostend Company The Emperor suspended its charter for seven years, thus virtually abolishing the Company* —*Grant*

1728 —The Danish East India Company, residing at Copenhagen, published proposals for a new subscription, and the following year, they obtained extraordinary privileges, from the king of Denmark, who declared his intention of making it the most flourishing Company in Europe —*Anderson E I Chron*

1729 —The Dutch Company had their Charter extended for 24 years, for which they paid the Republic a large consideration, at this time, their wealth and power in India, particularly at Java, equalled those of several monarchs —*Anderson E I Chron.*

1730 —The Charter, after much discussion, renewed to the English United East India Company, for 33 years The Charter to expire on Lady Day, 1769, including the three years' grace —*Mill*

Four English China ships arrived this year, with 1,707,000 lbs of tea, and three other Indiamen, with 371,000 pieces of calicoes, besides other valuable merchandise —*Anderson E I Chron*

From 1725 to 1730, the English Company exported goods, £551,234, and bullion, £2,551,872 —*Grant*

1731 —The king of Sweden set on foot an East India Company, for trading from Gottenburg A Charter granted for 15 years

The king of Portugal formed a temporary East India Company, with *one* ship, to trade to Surat Their former Empire in the East thus reduced!—*Anderson East India Chronology*

1732 —The English Company first began to make up annual accounts This year their sales amounted to £1,940,996 But their competitors, the Dutch, were far exceeding them in returns and profits, thus in 1732, the English reduced their dividends, from 8 to 7 per cent per annum, which thus continued till 1744 The Dutch during a main portion of that time, realised 25 and 20 per cent upon the capital stock, and never less than 12½ —*Mill*

1733 —Mr Freke's government of Fort William commenced —*E I Chron*

1734 —Under the able rule of Shuja Addeen Khan, the provinces of Bengal, Behar, and Orissa greatly improved His power was respected by the Europeans —*Stewart*

M Mahe de la Bourdonnais, afterwards famous in India, was commissioned to improve the Isle of France, by the French Company To this officer the island is indebted for its forts, aqueducts, bridges, hospitals, and granaries The French influence and trade fast improving in the East —*Mill E I Chron*

1735 —The Mahrattahs had made such progress, that they burned the suburbs of Delhi, under the Emperor Mahomed Shah, who, (after the demise, in 1719-20, of the two infants, Ruffeh ad Durjaut and Ruffeh ad Doulah,) had succeeded Feroksere on the Musnud The Mahrattahs acquired the greater portion of Malwa, and a grant of the fourth part of the net revenues of the other royal provinces, thus originating the *Chout* —*Hamilton Rennell*

From 1730 to 1735 the English Company had exported £717,854 of goods, and £2 406,078 of bullion —*Grant*

Richard Benyon, Esq succeeded George Morton Pitt, Esq as Governor of Madras His government lasted nine years —*Dalrymple*

1736 —A proclamation was issued in January, prohibiting British subjects from trading to the East Indies, contrary to the liberties and privileges granted to the Company, or from serving in, or being on board any ships unlawfully trading This was probably to prevent connexion with foreign Companies —*E I Chron*

1737 —Calcutta nearly destroyed by a hurricane and earthquake† —*E I Chron*

* It was afterwards altogether dissolved by the treaty of Seville, but the Germans were not finally expelled from Bengal, until 1734 In 1730, their factory, at Banby Bazar, was in existence, and an English naval force seized one of their ships, and drove another under the factory guns The Dutch and English shortly after, by intrigues and misrepresentation, induced the Foujdar at Hooghly to invest the factory, which made a long and gallant defence, with a garrison reduced to only 14 men At length, the agent or chief being severely wounded, the factory was evacuated, the little garrison reaching the ships in safety and the Mogul troops, taking possession of the empty fort, levelled the works to the ground —(*Stewart* Gladwin's Nar of Govt Bengal)

† The following extract is from the *Gentleman's Magazine*, printed in 1738-39 "In the night between the 11th and 12th October, (1737) there happened a furious hurricane, at the mouth of the Ganges, which reached 60 leagues up the river. There was, at the same time, a violent earthquake which threw down a great many houses along the river side In Gargotta, (i e Calcutta,) alone, a port belonging to the English, two hundred houses were thrown down, and the high and

1738 —Mr Freke, Governor of Fort William, was succeeded by Mr Cruttenden, who was succeeded in the following year, by Mr Braddyth.—*E I Chron*

1739 —Nadir Shah entered and plundered Delhi 120,000 persons were massacred —*Stewart, Hamilton, and others*

Shuja Addeen Khan, Nawaub of Bengal, died, and was succeeded by his son, Serferaz Khan —*Stewart*

1740 —Nadir Shah, after dreadful exactions and tyranny, departed from Delhi —*Stewart*

Serferaz Khan attacked by Ally Verdy Khan, and slain in battle, succeeded by the latter —*Stewart*

Thirty thousand insurgent Chinese massacred by the Dutch at Java —*E I Chron.*

From 1735 to 1740, the United East India Company exported £938,970 of goods, and £2,459,470 of bullion —*Grant*

1741 —The Mahrattahs invaded Bengal, to demand the *Chout* of that province —*Stewart*

1742 —A ditch was dug round a considerable part of the boundaries of Calcutta, to prevent the incursions of the Mahrattahs —*Hamilton*

1743 —The Mahrattahs, with a new army, under Ragojee Bhoosla, again invaded Bengal The Nawaub Ally Verdy Khan drove them back, but his loss, in revenue, was immense, from their plunder, and the devastation they had inflicted during their incursion —*Stewart*

1744 —Now commences a new era in the affairs of Europeans in India, from the struggles that ensued between the rival interests of the two nations, on the proclamation of war between England and France, on the 21st May, 1744 Since the junction of the two English Companies, in 1708, the trade had been progressively improving, and the establishments in India quietly advancing, but little had occurred politically worthy of remark, for the long period of 36 years From this date events crowd on the notice of the chronologist

Previous to the breaking out of the war, in February, it was agreed, at a general court of the East India Company, to lend the Government one million of money, at three per cent, as an equivalent for the prolongation of the charter, for 14 years, (from 1769 to 1783,) to commence from Michaelmas, 1744, which was confirmed by Act of Parliament of the 17th of George II —*E I Chron*

On the declaration of war, a British squadron, under Commodore Barnett, appeared in the Indian seas —*Orme*

Nicolas Morse, Esq, succeeded to the Government of Madras —*Dalrymple*

1745 —The British squadron appeared off Pondicherry, but the Nawaub of Arcot, Anwar-ad-deen, at the instigation of Monsieur Dupleix, the French Governor, (who had succeeded to the supreme command of the French settlements, in 1742,) insisted on no hostilities being then committed —*Orme.*

The united East India Company, from 1740 to 1745, exported £1,105,750 of goods, and £2,529,108 of bullion —*Grant*

1746 —Commodore Barnett died His successor Mr Peyton engaged, without any decisive result, a French fleet, arrived under M De la Bourdonnais In September, the French landed a force at Madras, which town, after a bombardment of two days, capitulated Nothing could be lower than the English military power, spirit, and science, at this period, in India The Madras garrison consisted only of 300 men, of whom 34 were Portuguese "vagabonds," or deserters and negroes, 60 were sick and ineffective, and only 200 soldiers fit for duty The officers were three lieutenants of whom two were foreigners, and seven ensigns, who rose from the ranks Only one lieutenant and one ensign were deemed efficient officers —*Mill Orme E I Chron*

Mr Braddyll, Governor of Fort William, succeeded by Mr Forster, who was succeeded by Mr Dawson the following year Fort St David became the presidency, by the surrender of Madras —*Dalrymple*

1747 —Fort St David invested by the French, who retired on the return to the coast of the British squadron, under Capt Peyton —*Orme Mill*

1748 —Major Lawrence, subsequently celebrated in the coast army, arrived in January, from England, with a commission, to command the Company's forces Also Admiral Boscawen, with 13 men of war, and 17 other ships, with a considerable

magnificent steeple of the English church, sunk into the ground without breaking It is computed, that 20,000 ships, barks, sloops, boats, canoes, &c have been cast away Of nine English ships, then in the Ganges, eight were lost, and most of the crews drowned Barks of 60 tons were blown two leagues up into land, over the tops of high trees of four Dutch ships in the river, three were lost with their men and cargoes 300,000 souls are said to have perished The water rose forty feet higher than usual, in the Ganges." N B The steeple of the church was described to have been lofty and magnificent, and as constituting, before this period, the chief ornament of the settlement.—*Sketches of Bengal*

force on board They invested Pondicherry in their turn Ensign Clive, who came out in the civil service, but had joined the army here, distinguished himself The seige failed, and the British retired in September The military character of the French in India, considered at this time as greatly superior to that of the English —*Orme*

Mr Dawson, Governor of Fort William, succeeded by Mr Fetch

Mahomed Shah, Emperor of Hindoostan, died, after a disastrous reign of thirty years He was succeeded by his son, Prince Ahmed Mirza, who took the title of Ahmed Shah —*East India Chronologist*

1749 —Madras restored to the English, by the peace of Aix-la-Chapelle, signed on the 18th October, 1748 When evacuated by the French, it was found in a very improved state, the space round the works cleared and extended —*Orme*

The English took Devi-cottah, in supporting the claims of a fugitive Rajah of Tanjore, thus commencing to interfere, (in common with their rivals, the French,) in the quarrels of the native powers Subsequently, in the Carnatic, the French espoused the cause of Chunda Saheb, who set up as Nawaub of the Carnatic, the English taking the side of Mahomed Ally Khan, second son of Anwar-ud-deen Khan, on the death of his father —*Mill.*

1750 —Mr Barwell succeeded Mr Fetch, as Governor of Fort William —*East India Chronologist*

The intrigues of the French and English, with the native powers, assumed some importance, but M. Dupleix gained greater advantages than his rivals, from his greater address, deeper laid schemes, and more unprincipled conduct —*Mill Orme*

Mr Saunders took charge, as Governor, at Fort St David —*Dalrymple*

1751 —On the assassination of Nazir Jung, (who had assumed the title and power of Subadar of the Dekhan, on the death of his father Nizam ul Mulk,) Mozuffer Jung was invested as Subadar He appointed M Dupleix Governor of the Mogul dominions, on the coast, from the Kistna to Cape Comorin, and Chunda Saheb, his deputy, at Arcot; Mahomed Ally, the protegé of the English, fled, and offered to resign his pretensions —*Mill*

The new Subadar was early killed, during a revolt of his troops, but M Bussy, who now was distinguished in these transactions, procured the exaltation of Salabut Jung, who promised the same concessions to the French —*Mill De Bai*

The English, under Captain Gingens, (a Swiss,) had been defeated at Volconda, but under Capt Clive were more successful at Arcot —*Mill*

1752 —The seat of Government removed back to Fort St George from Fort St. David, 17th April —*Dalrymple*

Mahomed Ally again resolved to oppose Chunda Saheb and the French, he was supported by the English Clive obtained several advantages, and exhibited great military talents He was joined by Major Lawrence, when the allied enemies were completely defeated The French capitulated, and Chunda Saheb delivered himself up This prince was immediately assassinated by the native allies It is said, that Major Lawrence might have prevented this lamentable fate, but it would seem he was wrongfully accused by M Dupleix of being accessary to it —*Mill*

The new style took place in England, on September 3rd, which day became the 14th —*E I Chron*

1753 —Dupleix, not disheartened, again made efforts against his rivals, but the few English troops under Lawrence and Clive, were fast surpassing the French in India, in all the qualities of soldiers, the officers were better—the men more orderly The English had 700 Europeans, and 2,000 Sepoys, and 1,500 of the Nawaub's cavalry The French, 500 Europeans and 60 Horse Infantry, 2,000 Sepoys, and 4,000 Mahrattah Cavalry The year was passed in fruitless, but bold attempts, on the part of the French, to seize Trichinopoly, and of the English, to induce them to raise the seige —*Mill.*

Ahmed Shah, Emperor of Delhi, was deposed and blinded.—*Hamilton*

1754.—Great discontent existing in Europe, at the wars carried on by the French and English, in India, while their respective nations were at peace Commissioners were sent out to inquire into, and adjust the dissensions On the 2nd August, M Godheu arrived as Commissary, and settled with Mr Saunders, Governor of Madras, a peace between the Companies The English had succeeded in maintaining their ally, Mahomed Ally, on the throne, and had effected the ruin of Chunda Saheb, which results, added to their military successes, proved, that they had the advantage in the late operations M Dupleix was recalled, and badly received in France, but must have been an able, although an ambitious man He left M Godheu as Governor, and M Bussy in great power, at the Court of Salabut Jung, the Subadar of the Dekhan —*Mill Orme*

The king gave the royal assent to an act, in March, to punish mutiny and desertion, in the officers and soldiers, belonging to the East India Company —*E. I Chron.*

1755 —Notwithstanding the late peace, the rivals were still intriguing and interfering with the native powers The English proceeded against Madura and Tinivelly The French remonstrated and opposed them —*Mill*

1755 —A settlement at Negrais having been two years previous contemplated by Governor Saunders, Capt Baker was, this year, sent on an embassy to Ava —*Dalrymple*

Mr Geo Pigot succeeded Mr Saunders, as Governor at Madras —*Dalrymple*

1756 —Alumgeer assassinated Ahmed Shah Abdelli first entered Delhi —*Hamilton*

Fredericksnagore (Sesampore) founded by the Danes —*E I Chron*

Geriah, the stronghold of the Pirate Angria, attacked by Admiral Watson, and Clive, (just returned from Europe with the rank of Colonel,) it was carried on the 13th February, and much plunder obtained —*Mill Orme*

On the death of Aliverdi Khan, Nawaub of Bengal, his grand nephew, Suraja Dowlah, succeeded Immediately taking offence at the English, for their protection to a native officer, said to have escaped from Dacca, with treasure, he attacked Calcutta carried it on the 20th June, after a poor defence, (Drake, the Governor, having fled to the shipping,) and allowed his officers to shut up 146 European prisoners, in a small military prison room called, the black hole*, in which 123 of the number perished, during the night —*Stewart*

Suraja Dowlah, on his return from Calcutta, exacted 4½ lacs of rupees from the Dutch, at Chinsurah, and 3½ lacs from the French, at Chandernagore The latter had supplied him with powder —*Stewart*

Colonel Clive and Admiral Watson left Madras on the 16th October, with 900 Europeans, and 1,500 Sepoys, to inflict vengeance on the Nawaub, reached Fulta on the 20th December —*Stewart*

At this time, there were 70 houses only in Calcutta, and the present site of Fort William was a complete jungle —*Hamilton*

1757 —Colonel Clive retook Calcutta on the 2nd January, and forced Suraja Dowlah into a treaty, offensive and defensive, on the 9th of February

On the 22nd March, Clive took Chandernagore, against Suraja Dowlah's wish, war having been proclaimed anew between the French and English —*Stewart*

Having made a secret treaty with Meer Jaffier, an officer of the Nawaub, Clive shortly staked every thing in a daring attempt to conquer Bengal itself Thus refusing to return to Madras, as ordered, he advanced in June towards Moorshedabad, the Nawaub's capital On the 23rd June, he fought the battle of Plassey, against 18,000 horse and 50,000 infantry, and aided by the treachery of Meer Jaffier, routed the Nawaub's troops Suraja Dowlah fled, but in a few days was seized, and cruelly assassinated, by order of Meer Jaffier's son On the 29th June, Meer Jaffier was raised to the Musnud, and from that date, the influence of the British may be stated to have become paramount in Bengal —*Stewart*

During the operations in the Carnatic, on the declaration of war between France and England, Madura was taken by the English, under Captain Calliaud, on the 8th August, after that officer had successfully defended Trichinopoly The French took Chittaput, Trincomalee, and sundry other forts —*Mill*

Manillah taken from the Spaniards, by the English

The English established a Mint in Calcutta, and the first rupee was struck on the 29th of August —*East India Chronologist*

1758 —Count Lally, on the 28th April, landed at Pondicherry, as Governor General, and in three days, the fleet from which he disembarked, had an indecisive engagement with Admiral Pocock —*Mill*

Lally, who was haughty, impetuous, and unconciliating, was not disposed to look favourably on the successes of M Bussy, in the Deccan, where the latter had been powerfully controuling the entire Subah Bussy had possessed himself of the strong hold of Dowlatabad, and at the time of Lally's arrival, his influence was immense He was now recalled, while the effects of his measures, and the French supremacy in the Councils of the Dekhan, were wholly ruined in consequence —*De Bar*

Fort St David surrendered to Lally, on the 1st June, and on the 7th Devi-cottah was abandoned by the English —*Mill*

* It is to be regretted that the indefatigable and able Historian Mill makes this a handle for some of his wonted sarcastic abuse of the early English in India, and asks what business had Fort William with a black hole? He might as well inquire, what right has the same fortress now, to possess solitary cells for the soldiery? The 'black hole' in question, was simply one of a range of godowns (warehouses) on the ground floor, built against a four foot outer wall of the fort, the roof of the warehouse acting as a rampart, on which guns were placed,—the front of the godowns having a small verandah looking into the fort There were two small windows to the godown which had simply been used as a lock-up house, or '*Black hole*, for disorderly soldiers

1758 — Colonel Clive, in Bengal, after much intrigue and difficulty, in realizing the sums exacted from Meer Jaffier for his exaltation, in October, on an opening held out by a Polygar Chief, for the expulsion of the French from that quarter, detached Col Forde with a force, against the Northern Circars —*Mill*

Lally, in the Carnatic, disgusted every one, and having no funds or assistance, proceeded unwisely against Tanjore, to recover large sums, asserted to be due on treaty He failed in an attack on its capital, and returning to Pondicherry, found that the French Admiral, after a slight discomfiture by the English fleet, had determined to proceed to the Mauritius In vain Lally remonstrated, and from that time, his late high hopes and haughty expectations of success, failed him still, with energy and ability, worthy of a better result, on the 14th December, he commenced the siege of Madras —*Mill De Bar*

1759 —Lally obliged precipitately to raise the siege of Madras, on the 16th February, M Bussy was taken prisoner during the siege —*Mill De Bar*

The troops, under Colonel Forde, sent round from Bengal against the Northern Circars, took Masulipatam on the 7th April Salabut Jung, the Subadar, created by M Bussy, on the reverses of the French, threw himself in the arms of the English The power of Europeans in India was, by this time, so firmly rooted, that he was aware he could not sustain his rule in the Dekhan, without the support of one or other of the rivals —*De Bar*

The English, after a mutiny of the French troops, successfully attacked and carried Wandewash *De Bar*

In Bengal, Col Clive was threatened with a new enemy, the Emperor Alumgeer having invested his eldest son with the government of Bengal, and full powers to seize it, an army was formed, and attacked Patna, in its progress to Moorshedabad, but the Nawaub of Oude, deserting the Shahzada, and treacherously seizing Allahabad, in the rear of the royal army, Bengal was saved, and the prince obliged to throw himself upon Clive's protection The Nawaub, Meer Jaffier, in gratitude, gave a Jaghire to Clive, worth £30,000 per annum —*Mill*

In August, a Dutch fleet, with troops, arrived in the Hooghly Clive hesitated not to attack them, on the asserted behalf of Meer Jaffier, although at peace with Holland This attack was successful, and the Dutch were forced instantly to retire with much loss —*Mill*

On the Bombay side, the Siddee, during an insurrection against him, resigned his government of the castle and fleet to the English, whose possession was confirmed by the Court of Delhi This greatly increased our importance in that quarter —*Grant*

1760 —On the 22nd January, was fought the battle of Wandewash, by Colonel Coote, against Count Lally, in person The Count had determined to make a stand, not only to restore confidence in his troops, but to save Arcot, if possible He was defeated with heavy loss, and retired under the walls of Pondicherry Arcot also fell —*De Bar*

Early in February, Clive resigned, meditating to retire with his fortune to Europe, he was succeeded temporarily by Mr Holwell, until the arrival of Mr Vansittart, in July —*Mill*

After Clive's departure, the Mogul's eldest son was again induced to invade Bengal, and on the assassination of the Emperor of Delhi, the prince being proclaimed in his stead, continued his advance on Bengal, with the imperial force Colonel Calliaud had succeeded to the command of the British troops —*Mill*

An action took place near Patna, and a detachment under Lieut Cochrane was cut up, but on the 22nd February, a general engagement was fought between the English force, with their Bengal allies under Meer Jaffier's son, and the Emperor the latter was defeated The Emperor next determined to push past the allies and seize Moorshedabad, but on the 7th April, he was overtaken by Calliaud, when he set fire to the imperial camp, and fled —*Mill*

In May, Captain Knox defeated the Naib of Purneah, who intended to have joined the Emperor —*Mill*

In October, Meer Jaffier was deposed as incompetent, and as guilty of enormities in his government of Bengal He could not, however, fulfil his pecuniary and other engagements to the English, which was the main offence, and the justice of his deposition has been deeply questioned, some of Mr Holwell's charges were afterwards entirely disproved —*Mill Grant*

Mr Vansittart raised the Ex-Nawaub's son-in-law, Meer Kasim, to the Musnud, who promised the fulfilment of all existing pledges, with other grants and advantages He ceded the districts of Midnapore, Burdwan and Chittagong, to the Company.— *Grant*

The French made a treaty with Hyder Ally, who marched to their aid at Pondicherry, but on the 4th September, the allies were completely beaten by the English, and Hyder Ally shortly afterwards withdrew.—*Mill De Bar*

1761 —After the bitterest disputes between the French and Lally, all parties being exasperated against him, Pondicherry was surrendered on the 16th January, to Col Coote —*De Bar*

The English troops and navy wished to retain Pondicherry, for the king, but Mr. Pigot, the Governor, insisted on its being delivered over to the Company, or threatened to withhold all pay to the forces it was given up to him, and he immediately destroyed its works and fortifications —*Mill*

The fate of Lally was melancholy On his return to France, he was sacrificed by the Ministry, while the feeling against him aided the attempt of his enemies to fasten on him alone the obloquy of losing India to France after four years' imprisonment, he was executed Posterity have been more lenient, and reversed the opinion against him Other causes, than the mere pride and rashness of an individual, were proved to have led to the destruction of the French empire in the Carnatic.—*Mill De Bar*

Major Carnac, who succeeded Col Calliaud in the command of the troops in Bengal, arrived at Patna, early in January, and on the 15th, attacked and defeated the Emperor at Gya M Law, who, on the taking of Chandernagore, had proceeded up the country, to seek service with the native powers, was with the Mogul, and here taken prisoner —*Grant Mill*

The new Nawab, Meer Kassim Ali, soon began to be impatient of his English friends, but wanting means to oppose them, he proceeded to Patna, to seize on the treasures of his deputy, Ramnarain The vice Nawab solicited the aid of Major Carnac, and soon after of Col Eyre Coote, who superseded Carnac, but they were prevented by the Council from protecting him, and he fell a victim to the rapacity of the Nawab —*Mill*

Other sources of dispute arose the servants of the Company contended, that the firmaun of 1717, and the late treaties, authorised their own private trade to be free of duty The Nawab denied this, and apparently with reason and justice, and strenuously opposed such special immunity to the English He soon began to organise troops under Mogul officers, and removed to the Fort at Monghir —*Mill Grant*

1762 —Messrs Vansittart and Hastings repaired to the new residence of Kássim Ali, at Monghir, and the former treaties, relative to private trade, were modified; but the Council in Calcutta rejected the new terms, to the great indignation of the Nawab —*Grant*

The Philipine Islands taken by an expedition, fitted out from Madras —*Grant.*

Kássim Ali renewed his remonstrances against the private trade of the Company's servants, and the disputes assumed a serious aspect —*Mill*

1763 —Messrs Amyatt and Hay, sent on deputation to the Nawab, to insist upon continued immunity from duties He refused, dismissing Mr Amyatt, but retaining the other as a hostage Mr Ellis, the chief at Patna, at this juncture, widened the breach by his undisguised feeling of hostility to the Nawab The latter had seized some arms on the way to Patna, and refused to deliver them Mr. Ellis, on the 24th June, suddenly seized the Nawab's Fort, at Patna, but neglecting proper precaution and defence, it was retaken the next day, and all the English at Patna were seized as prisoners The Nawab, on this act of hostility, sent after, and murdered Mr Amyatt, on his way to Calcutta These events led the Council at Calcutta, on the 7th July, to proclaim Meer Jaffier again as Nawab, deposing Kássim Ali Meer Jaffier confirmed all existing treaties with the Company, besides according other advantages Major Adams, on the 19th July, defeated a force of Kássim Ali, between Calcutta and Moorshedabad On the 24th July, took Moorshedabad On the 2nd August, routed a large force at Gériah On the 5th September, stormed and seized the Fort of Oudenullah, defended by 100 pieces of cannon Kássim Ali, incensed to madness at these reverses, and frantic under accumulated resentments and ruined ambition, fled to Patna, from Monghir, and there cruelly ordered the massacre of the English in his power there were fifty gentlemen, Messrs Ellis, Hay, Lushington, and others, and one hundred of lower rank. On the 5th October, they were brought out in parties, and barbarously cut to pieces, or shot under the direction of a German, named Sumroo. Monghir fell to the English early in October Patna was stormed on the 6th November, and the Ex-Nawab fled to the Vizier of Oude, with his treasures, and the remnant of his army —*Grant*

Peace between France and England had been signed on the 10th February The 11th article gave back to France all factories, in their then condition France to erect no fortifications, and keep no troops in Bengal To renounce all acquisitions on the coast of Coromandel and Orissa, and to recognize Mahomed Ali Khan as Nawab of the Carnatic The peace honourable and advantageous to the English in India.—*Mill Grant.*

About this time, the Madras presidency, finding itself unable to keep up the armies required in the Carnatic, openly insisted upon possessing from Mahomed Ali, some districts, with their revenue, for the purpose —*Mill*

Mr R Palk succeeded, 14th November, to the Government of Fort St George — *Dalrymple*

1764—In the Carnatic, the English gradually assumed the Revenues The subjection of Mahomed Issoof, of Madura, cost the Company and their Ally, the Nawab, a million, before it was finally effected in October —*Mill*

In Bengal, the British Army, in pursuit of Kássim Ali, advanced towards Oude, which also harboured the young Mogul Major Carnac defeated the Vizier on the 3rd May, near Patna Major, afterwards Sir Hector Munro, superseding Major Carnac, severely punished some mutinous conduct of the soldiery, and caused 24 Sepoys to be blown away in one morning, from the mouths of cannon On the 23rd October, he fought the celebrated battle of Buxar, completely routing the Vizier's Army The following day, the Mogul threw himself on the protection of the British, and joined their camp, with the imperial standard of Hindustan The Army advanced to overrun Oude The Vizier refused to deliver up Kassim Ali, though he had seized and plundered him, and had offered to assassinate Sumroo —*Grant Mill*

Kássim Ali afterwards escaped into the Rohilla country, with a few friends and some jewels, which he saved from the fangs of his late ally, the Vizier.— *Mill*

1765 —Meer Jaffier, worn out by ill health and affliction at the impossibility of meeting the pecuniary engagements with the English, sickened and died in January, Nujeem ad Doulah, next surviving son of Meer Jaffier, was appointed to succeed his father —*Mill*

Lord Clive returned to Bengal, being appointed Commander-in-Chief, President and Governor, in Bengal, with Messrs Sumner and Sykes, as Members of the Select Committee He arrived 3rd May, and assumed the Government on the 7th. General Carnac and Mr. Verelst, the other Members, were then absent on duty The new covenants against presents were signed by the Company's servants, Civil and Military The Bengal Army signed the covenant, but the General delayed the signature, pending a reference to Calcutta, receiving, in the interval, two lacs of rupees from the Emperor The new Nawab of Bengal, on a fresh agreement, ratified on the 28th July, handed over all his Revenues, and the management of the Subadári, himself to have 50 lacs, subject to the controul of the Company's servants In operations against the Vizier of Oude, Lucknow had been taken by Sir R Fletcher, before General Carnac joined the army Allahabad had fallen, Chunar held out but on the 3rd May, General Carnac attacked the Nawab, at Corah, and routed him On the 19th May, the Vizier agreed to come into the British camp, and was well treated His dominions were restored The English authorities did not insist on private trade or factories, in Oude, but Allahabad and Corah were retained for the Emperor, who himself was forced to give up all claim to arrears of Revenue, from Bengal, Behar, and Orissa, and finally, on the 12th August, His Majesty signed the perwana, granting to the Company, the perpetual Dewannee of these three Provinces The private trade, so strongly prohibited by the Court, still partially retained, and under a public association, arranged by Clive himself— that of betel-nut, tobacco, and salt, the most valuable, engrossed by the public servants —*Mill*

The Northern Circars were given to the English in proprietary grant, but the cession took place on the following year —*Grant*

A dák established between Calcutta and Moorshedabad —*E I Chron*

1766 —From the year 1757 to 1766, it appeared, from Parliamentary documents, that £5,940,498 had been distributed to the Company and its servants, by the Princes and other natives of Bengal. By orders from Home, dated 1764, these presents were expressly prohibited, and Civil and Military servants were enjoined to pay to the Company all presents tendered by natives, which exceeded 4000 rupees —*Mill.*

Count Lally beheaded, 5th May —*Raynal*

12th November, a treaty concluded with the Nizam, by General Calliaud. The Company to pay nine lacs for the possession of the Circars, and to furnish troops to the Nizam, if required, for the affairs of His Highness's Government —*Grant*

A serious mutiny broke out in the Bengal army, consequent to the reduction of double full batta Formerly this allowance was paid by the Nawab, but the Company refused to continue it from the 1st Jan 1766 Almost every officer resigned. Lord Clive met the exigency with his usual sternness and spirit · he brought officers from all directions, for the command and charge of the troops, induced some to retract, and cashiered others by Court Martial. Amongst the latter, Sir R.

Fletcher, known for his successes in Oude, was dismissed for not at first repressing the combination —*Grant Mill*

1767 —On the 16th January, Lord Clive declared his intention to resign On the 17th February, Mr Verelst succeeded

Presents having been forbidden, Lord Clive gave up a legacy of five lacs from Meer Jaffier, and adding to it three lacs, from Syeff-ul Dowla, the successor of Nujeem ad Dowla, formed the fund (called Lord Clive's fund) for invalided officers and soldiers of the Company's Service, and their widows —*Mill*

Abdulla Shah marched towards Delhi, after overruning some provinces, returned to his own country

An expedition sent to Nepaul by the English, and failed

The war with Hyder Ali broke out in the Carnatic, but the Anglo-Indian Governments were crippled for want of money. Lord Clive's splendid financial promises, and the hopes in England, regarding the riches of India, already proving fallacious —*Mill*

Notwithstanding the growing pressure for funds abroad, the Court of Proprietors at home increased the dividend to 12½ per cent In consequence of this and other proceedings, the Restrictive Acts of the 7th of Geo. III cc 48, 49, and 57, were passed, by the last of these, the Sum of £400,000 per annum was to be paid by the Company to the Crown, for their new territorial acquisitions — *Grant*

1768 —Early this year, arrived the Company's peremptory order, entirely abolishing their servants' private trade in salt, and restricting them to the maritime branches of commerce A commission of 2½ per cent on the Dewannee revenues to be granted, however, in proportionate shares to the Governor in Council, Civil and Military servants of rank, with additional pay to Captains and Subalterns

Great scarcity of treasure in Bengal

On the Coast, the war with Hyder Ali was sustained with difficulty. This adventurous soldier, originally a common peon, next a petty officer, soon a commander of a few horsemen, and in charge of a small fortress—subsequently, a military retainer of the minister of the Mysore Sovereign, and leading a division of the royal troops—next, acting for himself, displacing his patron, and lastly, ejecting the pageant Hindu Prince of Mysore, and usurping the throne itself.—He was, by this time, the most formidable enemy the English had met with In September, after some partial successes of the English, Hyder made overtures of peace, but the tenders were haughtily and unwisely refused —*Mill Grant*

1769 —After the display of much military talent, Hyder Ali drew off the English army to a distance, and suddenly, with 6000 cavalry, appeared at St Thome, in the immediate vicinity of Madras He there imposed his own terms on the Government, who were forced, on the 4th April, into a peace, little creditable or advantageous to the British —*Grant.*

In April an Act passed, that the territorial revenues should be held for five years by the Company

Three commissioners were sent out to India, Messrs Vansittart, Scrafton, and Ford, they embarked in September, 1769, on the Aurora frigate, and were never afterwards heard of —*Grant.*

At this time it was proposed to send out a Naval Commander-in-Chief, with full political powers, on the part of the King, after much opposition, the measure was carried, and proved, for the short period that it lasted, very inconvenient.* —*Mill.*

Mr Verelst resigned in Bengal, 24th December, succeeded by Mr Cartier —*E I Chron*

1770.—A dreadful famine in Bengal, one-fifth* of the population perished.— *Grant*

On the 10th March, died Nawab Syeff-ul Dowla, of Moorshedabad, his brother, Mubarek-ul Dowla, a minor, succeeded The Court of Directors reduced his allowance to 16 lacs per annum, during his minority —*Mill*

1771 —The Parliamentary restriction on the dividends ceasing in 1769, the Court, in March and September, notwithstanding their difficulties for money in India, again raised the dividends to 12½ per cent —*Mill*

In May, the Emperor Shah Alum unwisely left the protection afforded him at Allahabad, and aided by the Vizier and the Mahrattas, re-entered his capital at Delhi, on December 25th

1772 —Mr Cartier was succeeded (13th April) by Mr. Warren Hastings, in the Bengal Government.—*E. I Chron*

* Mill states the loss at ⅓ of the population.

On the 14th May, the collection of the Revenues in Bengal was undertaken entirely by the Company, who now stood forth as Dewan In 1769, Civil Servants were appointed as Supervisors of the native revenue officers: and were henceforth to be denominated collectors The lands to be let for five years—*Mill*

The seat of Revenue business, and the Treasury, removed from Moorshedabad to Calcutta The chief seats of civil, and, at first, of criminal judicature, likewise transferred to the Presidency, under the name of Sudder Dewanee Adawlut, composed of Governor and two councils for civil matters, and Sudder Nizamut Adawlut, for criminal proceedings, composed of native law officers, exclusively subject to review of the Governor and Council Under these were District Courts, the Collectors having, at the same time, revenue and judicial authority —*Grant*

Mr Hastings deposed Mahomed Reza Khan, from his high situation of Naib dewan, at Moorshedabad, and Raja Shetab Ray, the same at Patna, bringing both as prisoners to Calcutta, in April Munny Begum, originally a dancing girl, appointed to the charge of the young Nawab, and the controul of the palace of Moorshedabad —*Mill*

The Mahrattas permitted to ravage Rohilcund —*Mill*

1773 —The financial distresses of the Company increasing, they applied to the British Minister for a loan His Majesty's Government finding the feelings of the country alienated from the East India Company, by their improvidence, and stated mismanagement, brought in the important *Regulating Act* of 1773, (13 Geo III. c 63,) appointing a Governor General and four Members of Council, for five years, to Bengal, Mr Hastings to be Governor, Mr Barwell Senior Member, and Lieutenant General Clavering, Colonel Monson, and Mr Philip Francis, Members The constitution of the Court of Directors was altered, an annual election of six Directors for four years ordained a year to elapse before an Ex-Director could be eligible Qualification for a Proprietor now raised to £1000 The Crown also assumed, formally, a privity and controul in the affairs financial and political, of the Company The Mayor's Court was abolished at Calcutta, and Supreme Court of Judicature established. The Judges to be sent from England Similar steps were subsequently pursued at the other Presidencies —*Grant*

The English entered into a treaty with the Nawab of Oude, for the destruction of Rohilcund, the Nawab to support the charge of the British army A garrison thrown into Allahabad, and a Member of Council sent to take charge of the revenues The Emperor of Delhi left to his fate, amidst the aggressions of the Mahrattas and Corah and Allahabad handed over by the English to the Nawab —*Mill*

In *Bengal*, in 1773-4, the revenues were £2,481,404

The Civil and Military charges were 1,488,435

The Army, about this time consisted of Artillery, five Companies, Cavalry, one Troop, European Infantry, three Regiments, Native Infantry, 23 Battalions, and 28 Companies of Invalids, total, 27,000 men

Fort St George, revenue and subsidies, £887,302

The charges were 814,992

The Army—(1772)—European Infantry, 3,486, European Cavalry, 68; Artillery, 581, Sepoys, 15,840, total, 19,975

Bombay (1773-4), revenues, . . . £109,163

Charges, . . . 347,387

The Army—Artillery, 434, European Infantry, 1,620, Sepoys, 4,346; total, 6,400 —*Grant*

War anew with Tangier, the English and their Ally, the Nawab of the Carnatic, being dissatisfied with the terms obtained in 1771 On the 16th September, Tangier was carried by storm, and the Rajah and family taken prisoners in the fort He was dethroned, and his territories seized by the Allies —*Mill.*

1774 —Colonel Champion, Commander-in-Chief in Bengal, assumed the command of an army in Feb, destined to act against the Rohillas, in alliance with the Nawab Vizier On the 23rd April, (known as the battle of St George,) he defeated 40,000 Rohillas, under their Chief Hafez, near Babul nullah The Vizier kept aloof; but after this victory, (which led to the termination in July, of the first Rohilla war,) he plundered and despoiled the whole country.

The new Counsellors, General Clavering, Mr Monson, and Mr Francis, arrived in Calcutta 19th October Mr Hastings assumed the title of Governor General, now first authorized, but discussions immediately arose between himself and colleagues Mr Hastings and Mr. Barwell were in the minority, thus the new counsellors wielded the powers of the Government —*Mill*

Collectors' Courts abolished, and Provincial Councils established at Calcutta, Burdwan, Dacca, Moorshedabad, Dinagepore, and Patna, to superintend the joint Departments of Revenue, Trade, and Administration of Justice —*Grant*

23rd November, Lord Clive died in London, aged 49 —*E I Chron*

1775 —Died Sujah ud Dowla, the Vizier of Oude, succeeded by his only son, under the title of Assoff ud Dowla

The Bombay Government, previous to this period, had interested and mingled themselves much with the politics of the Mahrattas, and were about this time in alliance and support of Ragoba, the Ex-Peishwah On the 28th December, 1774, a force from Bombay had seized and occupied the Island of Salsette, and a force under Col Keating, having effected a junction with Ragoba, the allied army was attacked by their Mahratta enemies, on the 18th May, 1775, at Arras; when the British and their Allies, after much loss, were victorious At this juncture, the Bengal Government, now supreme, interfered to disapprove of the connection of the Bombay Presidency with any of the Mahratta powers, and insisted on an immediate cancelment of the treaty with Ragoba, (by which Salsette, Basseen, and part of the revenues of Baroach, had been secured to the Company,) and on the withdrawal of all the British troops furnished for his assistance

The Court's despatches of this year, it is curious to state, approve of the acts of the Bombay Government, at the very time they were ordered to be annulled by the Supreme Authority in India —*Mill*

The Court in England, displeased at the late war and results, in Tanjore, determined on the reinstatement of the Rajah, and Lord Pigot was sent out to give effect to this, and other measures, at Madras He arrived as Governor, 11th December, 1775 —*Mill*

1776 —The Supreme Government deputed an Envoy of their own, Col Upton, to Poona, after much unsatisfactory negotiation, the Council decided on a war with the Mahratta confederates, and on the support of Ragoba—both of which had been the subjects of their severe condemnation, the preceding year, but on further negotiation, by Col Upton, a new treaty, (called that of Poorunder,) was obtained, still leaving Salsette to the English, but not so favorable as that secured at Bombay. Ragoba was now left to his fate, and retired to Surat with only 200 followers

Dissensions ran high between the Governor General and his Council, charges of bribery and corruption were brought against Mr Hastings, at the Council Board itself He indignantly dissolved the Council on each occasion of their being preferred there Nuncomar, a native of rank, implicated in preferring these charges, was convicted of forgery, at the Supreme Court of Judicature, by a Jury of Englishmen, and hanged This act much condemned

In November, Colonel Monson died, which restored to the Governor General, the majority in the votes at Council, and gave him again the direction of the Government —*Mill*

The Tanjore Rajah restored Lord Pigot and the Council of Madras had violent disputes, and on the 24th August, the Council arrested the Governor, stripping him of all authority. He died in restraint, on 31st August, of the following year The four Members of Council, who committed this violence, were subsequently tried at home, found guilty, but fined only £1000 each.—*Mill*

1777 —The quinquennial settlement at Bengal having expired, and both Mr Hastings and Mr Francis, having meanwhile submitted able revenue plans, (both differing, and neither of them adopted by the Home Authorities,) the annual leases were again put in force, and were continued for four years —*Grant*

1778 —The treaty of Poorunder, (Col Upton's,) not proving satisfactory, and part of the Mahratta confederates having resolved to support Ragoba, the English were applied to again to aid him The Governor General assented, and six Battalions of Sepoys, one Company of Native Artillery, and a Corps of Cavalry, assembled at Culpee, under Col Leslie, with orders to march towards Poona, through Berar

The French, at this period, had much influence at Mysore, attempted, through Agents, to obtain footing and influence among the Mahrattas

Sir Thomas Rumbold succeeded to the Government of Fort St George, in February His acts gave much dissatisfaction to the Home Authorities, particularly as regarded his alleged corrupt installation of Sitteram Ráz, in the Dewanee of the Guntoor Sircar

War breaking out between England and France, the French factories of Chandernagore, Masulipatam, and Carical were occupied without resistance Sir E. Vernon, with a British squadron, engaged that of the French, under M. Tronjolly, 10th August, and dispersed the latter. Pondicherry was invested, in September, by land, under Sir Hector Munro, and by the English fleet, by sea. After a gallant defence, under M Bellecombe, it surrendered on the 17th October, and its works were again razed —*Mill*

1779 —A Force from Bombay, in support of Ragoba, impeded by the blunders of Civil Commissioners placed in controul of it, got into difficulties, and commenced a disastrous retreat, when only 16 miles from Poona Negotiation was commenced under these unfavorable circumstances with the confederates, and a treaty signed,

by which much of the acquisitions of the English, in that quarter, was relinquished

Col Leslie, commanding the Bengal force, having died the year before, General Goddard assumed the command, and after much difficulty, and under conflicting orders, marched 300 miles in 19 days, across India, reaching Surat on the 30th January He was now invested by the Supreme Government with full powers, to treat with the Poona Ministry After much ineffectual discussion, hostilities were resumed at the close of the year

Sir Eyre Coote succeeded General Clavering, as Commander-in Chief at Bengal, and Member of Council in April

The Supreme Government disapproved of Sir T Rumbold's acts at Fort St George, he indignantly repelled the interference

The French settlement of Mahe taken by Col Braithwaite, 19th March of this year, although Hyder Ali remonstrated against the act, Mahe being useful to himself —*Mill*

1780 —General Goddard carried Ahmedabad by storm, on the 15th February, and on the 3rd April, surprised the camp of the Mahratta confederates, and dispersed them

In the rainy season, Scindia and Holcar withdrew into their own countries But the most brilliant event of this year was the assault and capture of Gualior, on the 3rd August, by Capt Popham, with a small detachment, intended to augment the forces of Goddard

A duel took place between Mr Hastings and Mr Francis, the latter having been accused of breach of faith—he was wounded he embarked for England on the 9th December

Hyder Ali, who for some time had been regaining his power, consolidating his means, and disciplining his army, by means of French officers, incensed at the capture of Mahe, contrary to his wishes, put his troops in motion, in June, and had entered into a treaty with the Mahrattas, against the English The Government at Madras were struck with alarm, being without troops, money, or military means. Hyder's army now advancing was 100,000 strong, 20,000 of them disciplined, and commanded by the French They spread devastation and ruin, around the precincts of Madras, while Sir Hector Munro had no force, to make head against them Arcot was invested by the Mysoreans Col Baillie's detachment was overpowered and cut to pieces on the 9th September, and Sir H Munro, who had advanced to his relief, forced back to the mount, from Conjeveram The Supreme Government now interposed It sent round Sir Eyre Coote, by sea, in October, with treasure and troops, detaching a body of Sepoys by land. Mr Whitehill, who had succeeded Sir T Rumbold, as Governor, on his removal in April, was suspended by the Bengal Government, Mr Charles Smith taking his place, 8th October, and Sir Eyre Coote, notwithstanding Arcot had by this time fallen, soon was prepared to enter into operations against the formidable enemy now opposed to the British —*Mill, and others*

At Bombay, the Government, under considerable financial difficulty, was obliged to contract new debts, to enable General Goddard, with his contingent force, to act with efficiency In October, he moved from Surat, with reinforcements of Europeans from Madras, against Basseen On the 10th December, when a practicable breach was nearly effected, the fort made an offer of surrender, which was carried into effect on the following morning —*Mill*

This year an act was passed at home, similar to one of the preceding session, permitting a dividend of 8 per cent for the year, reserving the surplus profit for the future disposal of the legislature

At Bengal, the new Supreme Court, from its constant pretensions and attempts, for some years, to extend its jurisdiction, had occasioned much inconvenience to the Government, and subjected the native community to distress, by the introduction of legal proceedings, affecting the property and persons of inhabitants of remote provinces, never contemplated to be amenable to its power The situation of the Company with native princes, and the treaties with the Nawab or others, were utterly disregarded by the Court The Cauzee of the Patna Court, in 1777, was seized for acting upon the regulations of Government, and the decision of the Company's Court reversed. The Cauzee died under imprisonment In the same year, a process was violently served on the Dewan of the Foujdaree Court, at Dacca, and some members of the Foujdar's family dangerously wounded in the affray. At length, 1779, a suit was commenced against the Rajah of Cassijurah, writs were issued, and the Rajah's zenanah forcibly entered, and his effects plundered The Government now summarily interfered, the Military at Midnapore were ordered to intercept the Sheriff's party Matters were thus at once brought to issue A summons, on the Governor General and Council, was served on them individually, and they, of course, refused, by their counsel, to submit to any such proceeding of

the Supreme Court. At length, (24th October, 1780,) a means of reconciliation with the Judges was adopted, by appointing Sir E Impey, to be Chief Judge, also of the Sudder Dewannee Adawlut, with an additional salary of 60,000 rupees per annum This appointment was deemed most exceptionable on general principles, notwithstanding the admitted advantage of his professional knowledge, and that he reformed and methodised the practice of the Dewannee Courts —*Mill Grant*

1781 —At Bengal, in April, the Dewannee Courts were increased from 16 to 18, and the Foujdars, or Native Magistrates, were this year removed In February, Mr Hastings had decreed, that a Committee of Revenue should be established at the Presidency, consisting of four covenanted servants, and Provincial Councils were abolished After these changes, the Governor General proceeded, in August, to Benares, determined to adopt measures against the Rajah Cheyte Sing Demands were made upon him for additional tribute to be paid to the Company, as the sovereign power now requiring assistance in its exigency The Rajah declined, pleading willingness, but inability He was seized by Mr Hastings' order, at Benares a revolt took place in his behalf, on the 20th August, nearly two companies of sepoys, and their officers, were destroyed—and the Rajah escaped in the confusion The Governor General immediately assumed controul of the province, and troops were called in to oppose the Rajah, who now headed the numbers flocking to his support He was defeated at Lutteefpore—and lastly, his stronghold of Bidjegur was seized, and his family plundered by a force under Major Popham The Rajah had fled, on his reverses at Lutteefpore, to Bundelcund After these transactions at Benares, the Governor General proceeded to Oude, to obtain an adjustment of the heavy debts due to the Company by the Vizier The territories of the Begums, (one, the mother of Sujah ud Dowlah, the late Nawab—the other, the mother of the present one,) were seized, on a charge of aiding the insurrection of Cheyte Sing, and in an arrangement with the Nawab Vizier, their revenues and property were appropriated towards the redemption of the Nawab's debt to our Government

Madras —On the 17th January, the army, under Sir Eyre Coote, marched from the Mount, and proceeded to Pondicherry, where the General disarmed the inhabitants The French fleet was off that town but being in want of water and necessaries, and unequal to cope with the expected English squadron, it sailed on the 15th February, for the Isle of France The English fleet now attacked Hyder's new shipping, and destroyed the germs of his maritime power, at Calicut and Mangalore On the 1st July, Hyder, emboldened by a partial repulse, suffered by the English General, at Chellinbram, in June, risked a general engagement at Porto Novo, and was completely routed Hyder abandoned now his designs on the southern provinces, his son Tippoo raised the siege of Wandewash—and both retired to Arcot On the 27th August, another battle took place, at the place where Baillie was defeated The result was indecisive, though victory was claimed by both armies The English troops were in great difficulty for pay and provisions But on the 27th September, Hyder suffered farther loss at the pass of Sholinghur, and in October, his fortress of Chittore surrendered On the 21st November, the English returned to cantonments, having lost one-third of their force in this campaign During the year, Lord Macartney had assumed the Government, on the 22nd June, and putting himself at the head of the Militia, he took Sadras and Pollicat, on the breaking out of war with the Dutch On the 12th November, Negapatam capitulated to Sir H. Munro, (who had left Sir Eyre Coote in disgust, and now commanded a force under the orders of the Governor,) and with it fell all the Dutch settlements on the coast,—shortly afterwards, those on Ceylon shared the same fate

On the 9th April of this year, Lord North brought forward, at home, some propositions restricting the Company, and bringing their affairs more under the controul of the Secretary of State. Though not adopted at this period, yet on these were afterwards based three principal provisions of Mr Pitt's East India Bill Lord North's suggestions were modified into the Act 21, Geo III cap 65, and all former privileges were granted to the Company until the 1st March, 1784 But all despatches on Revenue or Civil and Military matters were, by this Bill, to be submitted to the Minister.

Parliamentary attention was now much directed to Indian affairs Two Committees were formed in one of them Mr Burke became conspicuous—in the other, Mr Henry Dundas By a Bill passed on the 19th June, the Jurisdiction of the Supreme Court in India was restricted The Governor General, and Council, with all matters of Revenue, all Zumeendars, Native Farmers, and Collectors of the Revenue, were exempted from its jurisdiction —*Mill*

1782 —Madras —The campaign against Hyder commenced, by the English throwing supplies into Vellore The English fleet, under Sir E Hughes, and the French under the famous Suffrien, had an indecisive action on the 17th February The French

Admiral contrived, however, to land 2,000 men at Porto Novo From the 16th to the 18th February, Colonel Braithwaite's detachment bravely and perseveringly withstood incessant attacks from a combined force of French and Mysoreans, under M. Lally and Tippoo, but was, at length, forced to surrender Tippoo treated the prisoners well Cuddalore yielded to the same combined force on the 3rd April On the 12th April, the French and English fleets again engaged, and though the fight commenced under most disadvantageous circumstances for the English, they disabled the enemy, and both fleets lay for seven days within random shot, unable to assail each other, they then mutually retreated Hyder, in June, dexterously manœuvred with a detachment of his army, and carried off his treasure from Arnee, where it was threatened by Sir E Coote On the 29th June, news came of a separate treaty with the Mahrattas, made by the Supreme Government at Poona, on the 17th May, putting an end to all operations in that quarter A negotiation was commenced also with Hyder, who again out-manœuvred the General, and was only prevented from reducing Negapatam, in a plan of combined operations with Suffrien, by the latter again encountering the English fleet on the 4th July, the French Admiral was able, however, to retake Trincomalee, on the 31st August, the English fleet heaving in sight, just two days after its surrender, when a gallant action was fought,—and Suffrien broke six of his Captains, for not supporting him Sir Eyre Coote, by this time, was seriously ill, at Madras, and the Government there under much alarm their means were reduced to the lowest ebb, and their food even limited to 40,000 bags of grain, lying in the roads, unequal to a month's supply At this crisis, on the 15th October, the Admiral quitted them, and the following day, a storm either sunk or stranded the craft containing the grain Famine now raged awfully Sir Eyre Coote still sick no longer equal to command, sailed for Bengal, and General Stuart succeeded to the head of the army, with provisions only for a few days, and its pay six months in arrears

On the 7th December, Hyder Ali died, and Tippoo, (who had been detached against Colonel Humberstone, whom he vigorously attacked in conjunction with Lally, though the Colonel bravely withstood and repelled him,) hearing of his father's death, joined the main army, and was, in a few days, firmly established on the throne He now took the field in December, with 900 Europeans, 250 Topasses, 2,000 Sepoys of the French allies, with countless hosts of Mysoreans—while the English Carnatic force amounted only to 2,945 Europeans and 11,545 Natives

In Parliament, Mr Dundas moved the recall of Mr. Hastings, it came to no result, but on the 3rd May, an address to the King was carried, that His Majesty would be pleased to recall Sir E Impey, to answer for his conduct in accepting a situation under the Bengal Local Government —*Mill.*

1783 —Madras —The English army early commenced the campaign, but found that Tippoo was retiring from the Carnatic, being recalled in Mysore, not only to consolidate his government, but to defend his territories against an incursion of the English, under General Matthews, in Bednore. The General had reached Bombay, from home, with reinforcements for India, and immediately advanced as above. Tippoo suddenly, in April, appeared against him, retook Bednore, cut off the retreat of the detachment their resources ceased—and without food or ammunition, they surrendered to him on the 30th April The General and troops were afterwards cruelly treated Discussions had arisen at Fort St George, between General Stuart and the Government, and the army remained inactive till June, when it attacked Cuddalore, and failed The English fleet offered battle on the 22nd June to Suffrien, which the latter seemed to have declined, but immediately landed troops at Cuddalore, where the French were already more than superior to the English opposed to them. Just as the French were meditating an effective attack, peace was announced from Europe, between France and England—and the French seceded from their operations on behalf of Tippoo At this period, General Stuart was placed in arrest, by the Government, but Colonel Fullarton, who, with a separate detachment, was successfully carrying on operations in the southern provinces, was able to threaten, in November, even Seringapatam itself. He was checked only in his successful advances by negotiations for peace entered into with Tippoo

Bengal —Mr Hastings was occupied with measures regarding the Vizier of Oude The English residency was experimentally withdrawn, on the 31st December, under much asserted intrigue and cabal

At home, Mr. Fox proposed a Bill for Indian affairs, it had in view, the abolishment of the Courts of Directors and Proprietors Seven Commissioners were to be appointed by the Legislature, to manage the political, and nine Directors, to be selected by the Proprietors, to conduct the commercial concerns It created great alarm, and the King interposed to effect a majority against his Minister

Sir T Rumbold, late Governor of Madras, was arraigned before Parliament; but the doubtful situation of the Rockingham Ministry prevented the proceeding coming to a result.—*Mill.*

1784.—Madras —After some delay, peace with Tippoo was signed, (11th March,) on the general condition of a mutual restoration of conquests—it was ratified from Calcutta, Mr. Hastings being then at Lucknow; but no cordiality subsisted between himself and the Madras Governor, and he afterwards disapproved of the treaty, and insisted upon other terms. Lord Macartney, on his own responsibility, gave in the original treaty to Tippoo; nor did the Governor General resent the disobedience any more than he did that of the preceding year, when Lord Macartney refused to surrender the Assignment of the Carnatic territory to its Nawab, when ordered by the Governor General, on a reconsideration of the measure, to give up the Revenues and Government now formally assumed by the English

Bengal —In February, the Governor General again proceeded to the upper provinces. He imprisoned, at Benares, the Native Deputy placed over the territories of the deposed Cheyte Sing, for misconduct in the administration of the province. At Lucknow, he succeeded in obtaining more of the debt due to the Company, relieved the Vizier of the burthen of a detachment of the army, under Colonel Sir John Cummings, and finally restored in part to the Begums, as commanded by the Court of Directors, the Jaghiers which had been taken from those Princesses. He returned to the presidency in November

The defeat in Parliament of Mr Fox's Bill for India, in the preceding year, having been followed by the loss of office, Mr Pitt, his successor, procured, on the 13th August, 1784, the passing of an Act modelled by himself, but partaking of the provisions suggested by Lord North. Its grand enactment consisted of Ministerial Commissioners, forming a Board of Controul, its minor features were a secret Committee of Directors; less power to the proprietors; a provision for ascertaining the fortunes amassed by public servants in India, and a tribunal for the trial of offences there committed by them —*Mill*.

1785 —Mr Hastings on the 8th February, resigned the Government, and embarked for England In 1772, on the commencement of his administration, the Revenues under Bengal were, £2,373,650; the Civil and Military charges, £1,705,279; difference, £668,371 The debt in India was, £1,850,166, in England, £12,850,166. In 1785, the receipts under Bengal, had increased to £5,316,197, the expences were, £4,312,519, difference, £1,002,678 But including the Home debts, it appears, that in 1786, on bringing all arrears to account, 12½ millions had been added generally to the Company's debt during the period under review —*Mill*

1786 —Lord Cornwallis was appointed Governor General and Commander in Chief September 12 Courts of Dewannee placed under Collectors. Three Bills passed to amend late Act, a fourth also passed —*Mill*.

1787 —Mr Hastings impeached in Parliament—impeachment of Sir E. Impey negatived New Code of Judicial Regulations passed by Lord Cornwallis —*Mill*.

1788 —Mr Pitt's declaratory Act brought before the House. Hasting's trial commenced 13th February. Emperor Shah Aulum dethroned, and afterwards blinded by Gholam Kadir.—*Mill*.

1789 —Lord Cornwallis' revenue reforms and decennial settlements (afterwards perpetual) commenced Tippoo's operations against Travancore.—*Mill*

1790 —Administration of Criminal Justice assumed throughout Bengal provinces. Tippoo's aggression in Travancore led to war with the English, and an alliance was entered into by them with the Nizam and Mahrattahs General Meadows took the field—war varied in success Revenues and Government of Nawab of Carnatic resumed by the English.—*Mill*

1791 —Lord Cornwallis assumed the command at Madras against Tippoo. Bangalore carried by storm 21st March Battle of Aukera 15th May Hoolydroog taken 19th June, and afterwards Mendry Owog, Savendroog, and Onadroog stormed. —*Mill*.

1792.—Tippoo beaten near Seringapatam, 6th February. The place immediately invested, operations ceased on preliminary of peace 24th February Half of Tippoo's territories to be ceded, two sons given as hostages. Peace concluded 19th March.—Col Kirkpatrick's Embassy to Nepál.—*Mill*.

1793.—French settlements taken on breaking out of Republican war. Permanent Revenue settlement carried into effect by Governor General. Financial and Judicial functions disjoined in public officers. Zillah Courts instituted. Provincial Courts of Appeal ditto. Criminal Courts and Circuits appointed. Marquis Cornwallis resigned 28th October Sir John Shore succeeded as Governor General Charter renewed to East India Company for 20 years —*Mill*

1794.—Sir W. Jones died April 27. Tippoo's sons restored.—*Mill*.

1795.—Warren Hastings acquitted April 23, after trial of 7 years—all the Dutch possessions at Ceylon and on the Indian continent fell to the English. Mahomed Ali of the Carnatic died.—*Mill*.

1796.—The Indian Army re-organised.—*Mill.*

1797 —East India Judicature Bill passed the Commons 10th July. Lord Mornington appointed Governor General 24th October—Lord Clive to Madras, December 13th.—*Mill.*

1798 —Vazeer Ali of Oude deposed—Saadut Ali proclaimed. Sir J. Shore resigned March 12th Lord Mornington arrived May 18th. Treaty with Nizam, who disbands body of French Troops —*Mill*

1799 —Vazeer Ali's insurrection at Benares, January 14th War declared against Tippoo for intrigues with the French, February 22nd. Seringapatam taken by storm May 4th, and Tippoo killed. Mysore divided. Thanks of Parliament voted October 4th Lord Mornington created Marquis Wellesley, December 2nd —*Mill*

1800—Act passed for regulating Governor of British India, July 28th Marquis Wellesley made Captain General and C. C in India, August 7 College of Fort William instituted, August 18 —*Mill.*

1801 —Lord Lake arrived as Commander in Chief Supreme Court instituted at Madras, and Charter read, September 4 —*Mill*

1802 —Large cessions enforced from Nawab of Oude, with the deposition of Nawab of Furuckabad Powers of Arcot, Tanjore and Surat had been deposed. Subsidiary treaties attempted with the Mahrattahs Treaty signed with Peshwah at Bassein —*Mill*

1803 —Possession of Pondicherry, which had been given up on Peace of Amiens, recovered by the English Bonaparte had sent out several general officers, and others with 100,000 in specie Mahrattah powers opposed to Treaty of Bassein. War with Scindia and Berar Rajah Lord Lake marched against M Perron, who retired from Scindia Aligur taken by assault, 4th September Battle of Delhi 11th Battle of Saswarie (Lord Lake) 31st October Battle of Assye (Sir A. Wellesley) 23rd September Battle of Argaum (ditto), 29th November Province of Cuttack taken possession of in October Peace with Berar 17th December—Peace with Scindia 29th December —*Mill*

1804 —War against Holkar Monson's retreat July and August, brave defence of Delhi for 9 days in October Shah Aulum restored to nominal sovereignty at Delhi. Battle before Deeg 13th November General Fraser wounded mortally Holkar's Cavalry pursued during November Deeg fell 24th December.—*Mill*

1805 —Bhurtpore invested, assaults failed on the 9th and 22nd January and 20th February—Siege intermitted, and treaty with Bhurtpore 10th April. Cornwallis arrived again as Governor General and Commander in Chief 30th July Policy toward Native Powers changed. Lord Clive died 5th October Treaty with Scindiah 23rd November, and with Holkar 24th December —*Mill.*

1806.—Shah Aulum dies—succeeded by Akbar Shah —*Mill*

1807 —Mutiny of Native Troops at Vellore, January 31st —*Mill.*

1807 —Lord Minto assumes the office of Governor General, on July 31.—*(Comp to Alm 1832)*

1808 —War with Travancore occasioned by a misunderstanding between the British Resident and the dewan of the Rajah. Troops sent from Trichinopoly on the 30th December Col Chambers repulsed a body of Travancore Troops, and Colonel Hamilton another body at Anjuncha on the 31st December —*(Comp to Alm 1832)*

1809 —(Madras) Travancore Army again defeated, January 15th The lines of Travancore stormed on the 10th February Papanaviram captured on the 17th, and the whole of the lines on the 21st, which ended the war

In consequence of offensive regulations, considerable disaffection arose in the Madras army—on the 5th of August, Lord Minto sailed for Madras to suppress it On the 6th August, the Troops at Chottledroog seized the Military Treasure, and marched to join a force at Seringapatam, which had seized the garrison On the 23rd August the disaffected troops at Seringapatam surrendered—Lord Minto published an amnesty on the 25th September*

(Bengal) Adjygurh in Bundlecund stormed 13th February Bowannee, a Fort in Hurriana, reduced on the 29th August, the chief having plundered the British

In October assistance was given to the Rajah of Berar against the exactions of Ameer Khan, a predatory Mohammedan chief connected with Holkar. Ameer Khan was expelled from Berar.—*(Comp to Alm 1832)*

* The compiler of this Table had proceeded thus far when he found his task had been anticipated in a great measure by "Chronogical account of connexion between England and India," which was published at home in the "Companion to the Almanac" for 1832 As usefulness is the only aim of a mere compilation such as this professes to be, the compiler has availed himself gladly of the new Table from 1807, and endeavoured to render his own more correct This table, however, in earlier events is much fuller than that in the Companion to the Almanac.

1810 —Amboyna surrendered to the British, 17th February, followed by other islands Banda taken August 9 Ternate August 29th.

Troops under Col Keating landed at Bourbon July 7th, which fell on the 9th. The Mauritius surrendered on the 3rd December to an expedition from India under General Sir R Abercrombie —*(Comp. to Alm 1832)*

1811.—Expedition from India under Sir Samuel Auckmuty landed in Java on the 4th August On the 8th, city of Batavia surrendered—on the 10th followed the action at Weltervreden, On the 26th the entrenched camp at Cornelis was carried by assault, and with this action ceased the Dutch sovereignty of Java

1812—The Pindarees—large bodies of free-booters—began to be independent of their Mahratta patrons, and plundered part of the district of Mirzapore Subsidiary alliance formed with Anund Rao Guikwar, Rajah of Baroda.—*(Comp to Alm 1832)*

1813 —Governor General sends a letter, June 4th, to the Rajah of Nepál, demanding redress for repeated depredations of the Nepálese.

July 21, (Act 53 Geo c 155,) passed, renewing the privileges of the Company for 20 years By this act the trade to India was thrown open, that to China alone remaining exclusively with the Company The territorial and commercial affairs now separated; the accounts to be rendered distinct The king empowered to create a Bishop of India, and an Archdeacon for each Presidency, to be paid by the Company

The Earl of Moira assumed the Government as Governor General and Commander in Chief —*(Comp to Alm 1832)*

1814 —On the 29th May, the Nepálese attacked three British Tannahs at Bootwooh and murdered the Darogah For this and other acts the Governor General declared war on the 1st November The English troops at first beat back at Mollapannee, were repulsed with loss, and General Gillespie killed on the 31st November Col Bradshaw attacked and carried the post of Bushurwa, 25th November, and Lieut Boileau, in personal conflict, killed the Goorka Commander Major Ludlow's detachment was defeated at Jythug at the end of December —*(Prinsep)*

1815 —1st January, Captain Blackney's and Captain Sibley's detachments cut up by the Goorkahs near the Terrace Forest 3rd January, Major General J. Sullivan Wood beat back at Jeetgurh 10th February, Major General Marley suddenly relinquished his command of the army in the Terrace, he was succeeded by Major General Sir G Wood, who also failed to advance In February and March, Col. Gardner with a body of Rohillahs penetrated into Kumaon, and was successful in retaining a footing. Major Hearsey attempted the same, but was overcome by numbers and made prisoner Colonel Nicolls, with a regular sepoy force, proceeded to the support of Col Gardner, and on the 27th April, Almorah and the province of Kumaon formally surrendered to our arms in consequence of his successes

The Goorkah General Umar Sing defeated on the 15th and 16th April at Deolul, by Sir D. Ochterlony, and on the 15th May, being completely outmanœuvred by that enterprising officer, surrendered Maloun, and all the provinces from Kumaon westward, this finished the first campaign —*(Prinsep)*

1816—The Nepál General had sued for peace, but in their uncertain councils withheld the promised ratification, and hostilities re-commenced in February Sir D Ochterlony on the 14th and 15th February turned in person the position of Chooreah, and his army passed the first barrier of hills in progress to the capital, Catmandoo On the 28th February a general engagement ensued, and the Goorkahs were defeated with loss Peace followed, the Nepálese agreeing to receive a Resident, and sacrificing much territory

During this war, it was discovered that the Mahrattas were anxious to confederate against the British, while Runjeet Sing had a large army threatening the protected Seiks Ameer Khan also had an immense body of Patans ready to act against our Agra frontier In fact a general rising was contemplated, and Lord Hastings prepared accordingly The Pindarees were now to be extirpated for the immediate safety of our provinces The Mahratta powers consisted at this juncture of Scindia, sovereign of the states so called, Bajee Rao, the Peshwah and head of the Poonah states (who had early betrayed his hostility by murdering, through his minister Tumbuctjee, an envoy acting under the British guarantee), and Holkar, head of the dominions called after that family, and the Nagpoor Rájah, Appah Sahib. *(Prinsep)*

1817 —The supposed impregnable Fortress of Hattras fell (February 23rd), after a heavy bombardment

Appah Sahib, notwithstanding a late treaty with the British, was deeply intriguing and collecting troops; Bajee Rao was also arming extensive levies, and sent off his family and treasures from Poona Mr Elphinstone called in a British force and invested Poona on the 8th May, and Bajee Rao was forced to discard Tum-

buctjee, receive a contingent force, and pay 34 lacs by treaty signed 13th June Tumbuctjee for the time escaped

Lord Hastings left Calcutta for the Upper Provinces 6th July; on the 10th October the Bengal armies were put in motion, and Lord Hastings assumed command of the centre division, 20th October, taking up a position near Gualior to awe Scindiah. Sir T Hislop with the Deccan army from Madras, and Sir W. Keir from Bombay advanced against the Mahrattas

Scindiah soon signed (5th November) the treaty imposed on him, and thus was rendered harmless in the ensuing struggle

Ameer Khan followed his example on the 9th November. The Pindarees, the ostensible primary objects of our movements, were now in three bodies, 1st under Cheetoo, west of the Kalee Sind, the 2nd under Kureem Khan, near Bopal, the 3rd under Wazil Mahomed, to the westward of Saugor

The Peshwah broke out on the 5th November in an attack on the Residency, but was repulsed by Mr Elphinstone with the troops under Col Burn The Nagpoor Rájah Appah Sahib next attacked the Residency of Nagpoor, on the 25th November, and on the 27th, Captain Fitzgerald of the 6th Cavalry decided the protracted contest by his celebrated charge On the evening of the 16th December, Brigadier General Doveton attacked Appah Sahib at Nagpoor, and next day completely routed him Appah Sahib intimidated came into our Camp

The different divisions acting under Lord Hastings continued, to the end of the year, to pursue and destroy the hordes of Pindarees, now flying in all directions.

The Cholera Morbus, which had broken out in this year during the rainy season in the Delta of the Ganges, travelling westward attacked Lord Hasting's army, shortly after the conclusion of the treaty with Scindiah. The deaths were estimated at one-tenth of the army and followers

Ameer Khan's treaty finally ratified 19th December, when he went into Sir David Ochterlony's Camp Sir T Hislop totally defeated the troops of Holkar at Mahidpore on the 21st December.—*(Prinsep)*

1818 —On the 1st January Captain Staunton, with a single Battalion gallantly beat off repeated attacks of the whole of the Peshwah's army, consisting 20,000 men. Holkar on his defeat at Mahidpore, immediately accepted the terms imposed on him, the same were ratified on the 17th January Sutara taken by General Smith, 11th February. Bajee Rao for ever deposed, the Sutara family restored, and Sevajee's standard hoisted The Ex-Peshwah was again defeated by General Smith on the 20th February, Gokla was slain, the forts of Bajee Rao fell, and himself became a fugitive Lord Hastings, finding his plans nearly effected, commenced his march homewards on the 15th February Talner attacked by Sir T Hislop, 27th February, and carried after the loss of several officers by treachery, the Killadar was hanged. Mundella, which was to have been given up, was obliged to be stormed 26th April, the fort fell the next day the Killadar was tried but acquitted, having private orders from his sovereign Appah Sahib* Saugor surrendered 11th March On the 17th April Bajee Rao's army was met at Soonee, and routed by Col Adams with a small force His remaining Infantry was attacked at Soolapore by Brigadier General Munro, and completely destroyed. Soolapore fell on the 15th May with the remains of his Artillery Chanda was invested by Colonel Adams on the 9th May, it was stormed and carried on the 20th Bajee Rao surrendered himself to Sir John Malcolm, on terms however very favorable for the Prince Maligoan, garrisoned by the Arabs late in the Mahratta service, surrendered on the 13th June

Thus, including the fall of Asseerghur in the following year (April 19th), was effected the entire subversion of the Mahratta powers Scindiah became crippled, and existing only on sufferance. The Sutara family was restored, but subservient to our power, and restricted to a small domain. The late Peshwah Bajee Rao's power utterly destroyed, his dominions occupied, and himself a prisoner Holkar submissive, and in complete check The Nagpoor states new modelled Bajee Rao Bhoola placed on the throne, but the government was placed under the controul and management of the British —*(Prinsep)*

1819 —A settlement made at Singapore by Sir Stamford Raffles, January. In western India the Fort at Newah taken, January 31st, that of Newtee February 4th, Raree February 14th, Booj March 23rd, Asseerghur March 30th, Copal Droog May 14th. An expedition from Bombay sailed October 30th for the Persian Gulph, and took the fortress of Ras el Khyma, the capital of the Joapmee Pirates, on the 9th December, and the Fort and Town of Zaya, about ten days later. The Spasmodic Cholera, which had broken out in India 1817, [illegible] in various parts of it.

* Appah Sahib's treachery being proved, he w[illegible] arrest he made his escape again, 13th April.

The Vuzeer of Oude threw off his nominal allegiance to the Emperor of Delhi, and assumed the title of King*

1820 —The Prince Azim Jah Bahadur installed Nawab of the Carnatic, February 3rd, vice Azim ul Dowla, who died the preceding August. Spasmodic Cholera broke out in Manilla, and the natives attributing it to the secret arts of Europeans, rose upon and murdered many of them, October 9 Dwarka in Okamandel taken, November 25th

1821.—Peace concluded between Imam of Senna and the British Government, January 15th. The capital of the Arab Tribe of Beni Boo Ali, taken in March, by Colonel Lionel Smith Napoleon Bonaparte died at St Helena, March 5th Revolution at the Portuguese settlement of Goa, September 6th Cholera raging in Persia.

1822 —Dr. T Fanshaw Middleton, the first Bishop of Calcutta, died July 8th. Severe Fire at Canton November 1st Treaty with the Nizam, December 12

1823 —January 9th, the Marquis of Hastings resigned his Government of India. Lord Amherst appointed his successor, assumed the Government 1st August

1824.—War declared against the Burmese in consequence of their aggressions, March 5th Rangoon taken by the British Forces, under Sir A Campbell, May 11th Island of Negrais taken, May 17th. Cheduba taken May 27th. Tavoy and Mergui taken, September 15th, and Martaban October 30th Mutiny at Barrackpore, many Sepoys killed, November 2nd Kemmendine and Dallah taken, 9th December. Nawab Mobaruck Ali Khan placed on the musnud of Bengal, Behar and Orissa, December 23rd.

1825 —Syriam taken from the Burmese, 11th January Rungpore and Tantabair on the 2nd and 6th February Donabew taken and the Burmese General Bundoolah killed, 2nd April Ramree and Prome taken 2nd and 25th April. His Highness Azim Jah Bahadur, Nawab of the Carnatic, died November 12, aged 34 Wallygoun and Paghammew taken from the Burmese, 11th and 25th November The Enterprise, the first Steam Vessel, sailed for India 16th August, arrived at Saugor December 8th There was a rebellion at Bhurtpore on the Rajah's Death in February, and the British Government commenced operations to support the heir.

1826 —Bhurtpore stormed and taken by the Bengal Troops under Lord Combermere, January 18th, the British lost during the siege 45 officers killed and wounded, and 1500 men, the enemy lost some thousands, and the Usurper was seized The Burmese defeated at Melloon by Sir A Campbell, January 19th, and forced to conclude a peace, on the 24th February War declared between Russia and Persia

1827 —Sir T Munro, Governor of Madras, died July 6th. Natives of India permitted to sit as Jurors, July 9th.

1828 —Treaty of Peace between Russia and Persia signed, February 22nd Lord William Bentinck appointed Governor General of India, arrived in India, and took his seat in Council July 4th

1829 —The Act for the Relief of Insolvent Debtors in the East Indies brought into operation, March 1st Europeans allowed to hold lands in their own names on leases of 60 years in February of this year The rite of *Suttee* abolished by Lord William Bentinck in December

1830 —The House of Messrs Palmer and Co of Calcutta failed, 5th January, being the first of a series of failures of the leading houses to the extent of many millions sterling. H. M George the 4th died, June 26th.

1831 —Ram Mohun Roy, a Brahmin, arrived at Liverpool from India, April 8th. Lord William Bentinck met Runjeet Sing at Roopur, October 25th

1832 —Parsee Riots at Bombay, June 7th Fire at the Arsenal Fort William, July 25th An intended Mutiny discovered at Bangalore, October 28th

1833.—The East India question debated in Parliament, and leave given to bring in a Bill for the renewal of the Charter, with some modifications, in March. The Bill was subsequently passed, August 18th Its leading new provisions as follows The British Indian Territories to remain under the Company till the 30th April 1854. Trade to cease from April 1834. All debts and liabilities made chargeable on Territorial Revenue A dividend payable in Great Britain half yearly on East India Stock, at the rate of £10. 10s per cent redeemable after 1874 at £200 for every £100 stock. The Company to pay over to Commissioners for the reduction of national debt 2 millions, to increase at interest till it shall reach 12 millions, as a Security Fund of the East India Company The Presidency of Fort William to be divided into two Presidencies *(since modified)*. The superintendence and control in India, Civil and Military, vested in a Governor General and Counsellors to be styled "the Governor General of India in Council." To have three

* In the following years the events are quoted on the authority of the Madras and Calcutta Register, the Gazettes, &c.

Ordinary Members of Council, Servants of the Company (a Military servant eligible) and a fourth Member, not a servant of the Company The Governor General in Council empowered to legislate for India, and his Laws and Regulations to have the force of Acts of Parliament, subject however to disallowance by the home authorities The Council may assemble in any part of India A Law Commission appointed to inquire into existing Laws, the Court of Justice, Police, &c Governors of other Presidencies to have same powers and immunities as heretofore, but not to make laws or grant money British subjects, allowed to reside without licence in India with certain exceptions only allowed to purchase land Persons of all colours, religion or country admissible to any office or employment under the Company His Majesty empowered to make Bishops for Madras and Bombay Four candidates for students to be entered at Hayleybury for each vacancy in the Civil Service St. Helena to be transferred to the Crown, &c &c Lord Napier appointed H M 's Chief Commissioner at Canton, November, after the ceasing of the Company's Factory

1834 —War declared against the Rajah of Coorg, April 2nd British Troops march into the country, Mercara capital of Coorg, surrendered April 6th, and the Rájah on the 10th The China Trade stopped in consequence of disputes with the Commissioner, September 2nd H M Ships Imogene and Andromache force the passage of the Bogue Trade re-opened, September 23rd Lord Napier died October 11

1835 —Lord Heytesbury sworn in as Governor General in London, January 28th Corporal Punishment in the Native Army abolished by Lord William Bentinck, February 25th Lord William Bentinck quits Calcutta for Europe, March 20th Sir Charles Metcalfe assumes the Government, March 21st Lord Heytesbury's appointment as Governor General revoked by a new Ministry, May 4th Lord Auckland appointed at home Governor General, August 12th

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TABLE XCII *Classification of Native States, with which the British Indian Government is in alliance at the present time with the approximate area of their territories, ascertained by dissecting and weighing a map (See Journal of the Asiatic Society for* 1833, *page* 489*)*

The area of the native states in alliance with the British Government was found to be,	449,845
That of the territory under British rule with the remaining small states and jágírdars, ..	626,746
Superficial area of all India,	1,076,591

The extent of coast from Cape Negrais to the frontiers of Sinde is 3622 British miles, the breadth from Surat to Silhet, 1260 miles

[HAMILTON says, that the superficial area of Hindustan between the latitudes of 8° and 35° north, and the longitudes of 68° and 92° east, cannot be estimated at more than 1,280,000 English square miles, and the portion belonging to the British and their allies at 1,103,000, this estimate agrees very nearly with the above result of weighment]

Captain SUTHERLAND classifies the native states of India under the three following heads

I —*Foreign*, viz Persia, Kabul, Senna, the Arab tribes, Siam, Acheen

II —*External, on the frontier*, viz Ava, Nepal, Lahore, Sinde

III —*Internal*, which are those included in the present list All of these have relinquished political relations with one another and with all other states They are, according to the nature of their relations or treaties with the English, divided into six classes

FIRST CLASS *Treaties offensive and defensive right on their part to claim protection, external and internal, from the British Government right on its part to interfere in their internal affairs*

		Square miles		Square miles
1	Oude, containing, by weighment,	23,923	by HAMILTON*,	20,000
2	Mysore, .	27,999	..	27,000
3	Berar or Nágpúr,	56,723	. .	70,000
4	Travancore,	4,574	.	6,000
5	Cochin,	1,988		2,000

* This column, and other items marked H, are extracted from HAMILTON's Hindustan by way of comparison

SECOND CLASS *Treaties offensive and defensive right on their part to claim protection, external and internal, from the British Government, and to the aid of its troops to realize their just claims from their own subjects no right on its part to interfere in their internal affairs*

		Square miles		Square miles
6	Hyderabad, containing, by weighment,	88,884	by HAMILTON,	96,000
7	Baroda,	24,950		12,000

THIRD CLASS *Treaties offensive and defensive states mostly tributary, acknowledging the supremacy of, and promising subordinate co operation to, the British Government, but supreme rulers in their own domains*

8 Indore, containing, . . . 4,245 square miles

Rajputána States		Square miles			Square miles
9	Oudípúr, (H 7,300,)	11,784	16	Jesalmír,	9,779
10	Jeypúr, .	13,427	17	Kishengurh,	724
11	Jodhpúr, .	34,132	18	Banswára,	1,440
12	Kotah, (H 6,500,)	4,389	19	Pertábgurh,	1,457
13	Búndi, (H 2,500,)	2,291	20	Dúngarpúr,	2,005
14	Alwar, ..	3,235	21	Keroli,	1,878
15.	Bikanír, . .	18,060	22	Serowi,	3,024

			Square miles
	23	Bhartpúr, (by HAMILTON, 5,000,)	1,946
	24	Bhopal, (ditto 5,000,)	6,772
	25	Kutch, (H with the Runn 13,300,)	7,396
	26	Dhár and Dewas, .	1,466
	27	Dholpúr,	1,626
Boghelkhand, and Bundelkhand,	28	Rewah,	10,310
	29	Dhattea, Jhánsi, Terhi,	16,173
	30	Sawantwari,	935

FOURTH CLASS *Guarantee and protection, subordinate co-operation, but supremacy in their own territory*

31	Ameer Khan,	Tonk,	1,103	1,633 square miles
		Seronj,	261	
		Nimbahara,	269	
32	Patiala, Keytal, Naba and Jeend,		.	16,602

FIFTH CLASS *Amity and Friendship*

33 Gwalior, containing, . 32,944 square miles

SIXTH CLASS *Protection, with right on the part of the British Government to control internal affairs*

34 Sattara, containing, .. . 7,943 square miles
35 Kolapúr, 3,184

Of the above states, four are Mohammedan, viz Hyderabad, Oude, Bhopal, and Tonk Of the Hindu states, eight are Mahatta, viz Sattara, Gwalior, Nagpúr, Indore, Banda, Kolapúr, Dhar, and Dewas

Nineteen are Rajput, viz Oudipúr, Jeypúr, Jodhpúr, Búndí, Kotah, Kutch, Alwar, Bikanir, Jesalmir, Kishengarh, Banswara, Pertábgarh, Dungerpúr, Keroli, Serowi, Rewah, Dhattea, Jhansi, Terhi

Six are of other Hindu tribes, viz Mysore, Bhartpúr, Travancore, Sáwantwári, Cochin, and Dholpúr

Besides these allied states, there are the following inferior Rajships and Jagirdaris viz Chota Nagpúr, Sirgújer, Sambhalpúr, Singhbhum, Oudipúr, Manipúr, Tanjore, the Bareich family, Ferozpúr, Merich, Panggaon, Nepani, Akpilkote, and those of the Ságar and Nerbudda country, also Sikkim and the states of the northern hills

GENEALOGICAL TABLES.

THE purpose of the present division of our Appendix is by no means to attempt any improvement, nor even a critical adjustment, of the catalogues of princes preserved in the legendary records of the brahmans, but merely to afford a succinct synopsis of the principal ancient and modern dynasties of India, and of the neighbouring countries, for reference as to names, and, where accessible, as to dates

For the early or mythological history of the Hindús, little can be done beyond enumerating the mere names, and making the few variations in the lists of Sir WM JONES, WILFORD, BENTLEY, HAMILTON, WILSON, and latterly, Col TOD, who have endeavoured, successively, to trace the parallelism of the solar and lunar races, and assign to them more probable dates than those extravagantly put forth in the *Purânas* As the regular succession from father to son is given in them it was not a difficult task to apply the ordinary term of human generation, derived from the authentic histories of other countries, to the adjustment of the Hindu Chronology. Thus RÁMA in the solar line, who is placed by the brahmans between the silver and brazen ages, (867102 B C ,) was brought down by Sir WM JONES to B C 2029, and reconciled with the Rama of Scripture PRADYOTA, of the lunar race, in whose reign the last Buddha appeared, was brought down to B C 1029, the assumed epoch of SAKYA in Tibet and China · and NANDA to 699, &c In the case of the *Magadha* Rájas this adjustment was the more easy, because the length of each dynasty is given in reasonable terms from JARASANDHA, the contemporary of YUDHISTHIRA, downwards, and the error might be only in the wrong assumption of the initial date, the epoch of the *Kalí Yuga*, which the pandits allotted to the year 3101 B C After the discovery of the identity of CHANDRAGUPTA with SANDRACOTTUS, pointed out by Sir WM JONES, (As Res iv 26,) and followed up by WILFORD, (v 262,) a further reduction of 250 years in the position assigned to him in Sir WILLIAM's first list became necessary , and the diminished rate of generations, applied backwards, brought YUDHISTHIRA, and his con-

temporaries ARJUN, KRISHNA, and JARASANDHA, within the twelfth or thirteenth century before Christ A most satisfactory confirmation of the modified epochs of NANDA, CHANDRAGUPTA, and ASOKA has been since derived from the chronological tables of the Buddhists in Ava, published in CRAWFURD'S Embassy, and again in those of the Ceylon princes, made known by the Honorable G TURNOUR their near concurrence with Greek history, in the only available point of comparison, reflects back equal confidence upon the epoch assigned to the founder of their religion, (B C 544,) in spite of the Chinese and Tibetan authorities, most (though not all) of which place BUDDHA 500 years earlier It was this that misled Sir WM JONES in the epoch of PRADYOTA

There are some discrepancies in the Burmese tables difficult to be explained, such as the placing of AJATASATRU 80 years prior to SISUNÁGA, and the occurrence of CHANDRAGUPTA still 50 years too soon but we must refer those who would investigate this, and all other branches of the intricate subject of Hindu and Bauddha chronology, to the learned authors we have above mentioned, satisfying ourselves here with exhibiting a comparative table of the gradual changes effected by the progress of research in a few of the principal epochs

Names	*Puranic date*	*Jones*	*Wilford*	*Bentley*	*Wilson*	*Tod*	*Burmese list*
	B C	B C	B C	B C		B C	B C
IKSWAKU and BUDDHA,	2183102	5000	2700	1528		2200	—
RAMA	867102	2029	1360	950	—	1100	—
YUDHISTHIRA,	3102			576	1430		
SUMITRA and PRADYOTA,	2100	1029	700	119	915		600
SISUNAGA,	1962	870	600		777	600	472
NANDA,	1600	699	—		415	—	404
CHANDRAGUPTA,	1502	600	350		315	320	392
ASOKA,	1470	640			250	—	330
BALIN,	908	149			21	10	
CHANDRABIJA, the last of *Magadha* Rajás,	B C 452	300 A D			428 A D	546 A D	

The aid of astronomy has been successfully called in to fix such epochs as afforded the requisite data, thus the situation of the equinoctial colure in the time of the astronomer PARÁSARA, who flourished under YUDHISTHIRA, is fixed by DAVIS in 1391 B C, by Sir WM. JONES, COLEBROOKE, and BENTLEY, in 1180, which latter closely accords with the epoch of the *Cycle of Parasurámа*, used in the Dakhan, and apparently unknown to these authors, B C 1176 BENTLEY, on another occasion, alters this date to 575 B C! he also places RÁMA in 950 B C, but there is great uncertainty and incongruity in many of his determinations of the dates of native princes and of books, from the prejudices he exhibits, although he is entitled to every con-

fidence in his ingenious mode of calculating the period at which the various improvements in astronomy were introduced, and the *Siddhantas* written or revised, by the time when the positions of the planets, as assigned by their tables, accorded best with the more accurate results of European astronomy From the minimum errors, and the precession of the equinoxes, (first applied to such a purpose by Sir ISAAC NEWTON,) we have the following epochs substantially ascertained

Invention of the *Nacshatras* or Hindu Lunar mansions,	B C	4425 B.
The *Mahábhárat* war, according to WILFORD,		1367
The Solar Zodiac formed by PARASARA, (under YUDHISTHIRA,)		1180
Era of PARASURA'MA commences (see page 26) 7 August		1176
A Lunar Cycle invented, and precession discovered (Rama?)		945 B.
Four Yugas, founded on JUPITER'S motions,		215?B.
Seven Manwantaras, founded on SATURN'S revolutions,	A D	31?B
The *Ramáyana*, written by VALMI'KI,		291?B
VARA'HA MIHIRA, flourished, according to Telugu astronomers, (also Sir W JONES, COLEBROOKE, &c from precession of the equinoxes,)		499
Tables of the *Brahma Siddhánta*, fixation of the sidereal Zodiac, and new system of Chronology, with extravagant antiquity, compiled,		538 B
The *Mahábhárat* written, from KRISHNA'S *janampatra*,		600?B
The Javanese translation of ditto, according to RAFFLES, in		1079
Vishnu Purána, whence genealogies of Andhra kings, 4955 K Y or		954 W.
Origin of the *Kala Chakra*, or Jovian Cycle, (See prec sect p 29,)		965
Tables of the *Surya Siddhánta*, by VARA'HA MIHIRA,		1068-91 B
The *Varahi Sanhita*, supposed by the same author, gives its own date,		1049
The *Lilávati* of BHA'SKAR ACHA'RYA, bears its own date,		1088
The *Bhasvatis* of SATANANDA, pupil of VARA'HA, Saca 1021,		1109
The *Bhágavat*, supposed by COLEBROOKE to be written by a grammarian in		1200
The *A'rya Siddhánta*, compiled by A'RYA BHATTA,		1322
GANGADHAR'S Comment on BHA'SKAR A'CHA'RYA,		1420
The Works of KESAVA,		1440
The *Grahá Lághava*, by GONESH, his son,		1520

Mr BENTLEY would rob the seven last of a few centuries upon very insufficient grounds, he also ventures to place the authorship of the Rámávana in A D 291, and that of the Mahábhárata in A D 600, on far too slender astronomical data but his mania for modernizing renders his testimony of the advanced knowledge of the Hindus in astronomy, at so remote a period as the fifteenth century before Christ, the more valuable, and we can have little hesitation in giving credit to the lines of princes assigned to this space, and even to further antiquity, although their history has been mixed up with incredible mythos, and a falsified chronology The more moderate and rational dates preserved by the Bauddha priests would lead to a

supposition that the brahmans had purposely antiquated theirs, to confound their rivals in the contest for ascendancy over the minds of princes and people. That they should have suspended their histories with SUMITRA of the solar, and CHANDRABIJA of the lunar line, in the fifth century, might be naturally accounted for by the predominance of the Buddhists at that period, or more probably by the destruction of the Hindu monarchies by the incursions of the Huns and Tartars. The *Puránas*, or at least the prophetical supplements describing their genealogies, must have been compiled long afterwards, and the relative dates then falsified But the principal blame in the business seems to fall upon the astronomers, who are accused of throwing back the commencement of their era . for, taking the data of the *Pauránic* tables, and allowing, with them, 1015 years from YUDHISTHIRA to NANDA , and from the latter prince to PULIMAN 836 years, (which name is identified with POULOMIEN of the Chinese by WILFORD, and placed in the year A D 648,) the highest estimate of the *Bhágavat* gives 1857 B C for the epoch of the *Kali yuga*, instead of the 3101 assigned in the astronomical works , while in the *Brahmánda Purana*, it is brought down to B C 1775 , and in the *Váyu Purana*, to B. C 1729 The Jains, it is said, adopt the still more modern epoch of 1078 B C , and if ANJANA of CRAWFURD's Burmese chronology, founder of the sacred epoch, be ARJUNA, this contemporary of YUDHISTHIRA is placed by the Bauddhas so late as 691 B C !

The Jains are generally also the most trust-worthy authorities for the middle ages To them it is asserted, that ABUL FAZL is indebted for the series of Bengal, Malwa, and other princes published in the *Ayín Akbery* with every appearance of accurate detail The *Rája Taringini* of Cashmír also, the only Indian history of any antiquity, begins with Buddhist theogony The *Rájavali* collection of genealogies is quite modern, having been compiled by SIWAI JAYA SINH of Ambir, in 1650 Neither that nor the native bards and chroniclers, whence the valuable data for the more modern history of Hindustan were furnished to Col TOD for his Annals of Rájasthán, are to be trusted when they trace the ancestry of their princes back, and strive to connect them with the latter heroes of the *Puránas* , nor even to the earlier centuries of the Christian era, in which we find hardly any of their names confirmed either by grants, coins, or by the historians of neighbouring countries

More authentic in every respect are the copper-plate grants, dug up in many parts of India , and the Sanscrit inscriptions on columns and temples , of which many have been decyphered and published, although the subject is by no means yet exhausted Owing to a

fortunate pride of ancestry, most of these records of kingly grants recite a long train of antecedent Rájas, which serve to confirm or to supply vacuities in the more scanty written records Of the value of these to history we cannot adduce a better instance, than the confirmation of the *Bhupala* dynasty of the Rájas of *Gaur*, as given by ABUL FAZL in the occurrence of the names of DEVAPÁLA, DHERMAPÁLA, RÁJAPÁLA, &c, on the several monuments at *Monghir*, *Buddal*, *Dinájpur*, *Amgachi*, and *Sarnath* near *Benares*, where also the date and the Buddha religion of the prince are manifested It was supposed by Mr (now Sir CHARLES) WILKINS, that the two first inscriptions referred to the first century of the *Samvat* era, but, as shewn by Mr COLEBROOKE, as well as by actual date at *Sarnath*, they rise no earlier than the tenth Indeed, the occurrence of inscriptions *bearing unequivocal dates*, anterior to that period, is very rare. Col TOD adduces one of the fifth century (S 597) discovered near *Kota* Mr WATHEN has also recently produced two of the 4th and 6th centuries, dug up in Gujerat, which confirm, or rather correct, the early records of the *Saurashtra* dynasty The oldest, however, exist in Ceylon, where they have been brought to light by Captain FORBES and the Honorable Mr TURNOUR some of these, of which translations are published by the latter author in the Ceylon Almanac for 1834, are ascribed, on evidence of facts mentioned in them, to the year A D 262, but they bear no actual date. The period most prolific of inscriptions is from the 9th to the 13th century, when an anxiety seems to have prevailed among the priests to possess graven records of grants from the reigning or from former sovereigns, in order probably to secure their temples and estates from spoliation or resumption in those turbulent times. One of Col TOD's inscriptions, translated by Mr. COLEBROOKE, in the Roy. As Soc Trans vol i expressly declares a rival grant to be futile, and derived from an unauthorized source.

The value of inscriptions, as elucidations of history, cannot better be exemplified than by the circumstance of the Burmese inscription in the *Pali* character found at *Gaya*, on the visit of the envoys from Ava, in 1827, of which a translation was printed in the Journal As. Soc iii 214 It records the frequent destructions and attempts to repair the Buddhist temple there, and the successful completion of it in the Sacarâj year 667, A D 1306* Now Col TOD's Rajput annals of Méwár make particular mention of expeditions to recover *Gaya* from the infidels, in 1200 50, which might not but for this record have been capable of explanation

* Col BURNEY reads the date, which is rather indistinct, 467, or A. D 1106, but the above evidence tends to confirm the original reading

Where dates are not given in inscriptions, the style of the Nágari character will frequently serve to determine their antiquity The cave temples of the west of India exhibit the most ancient form, the Gujerát type, above alluded to, of the 4th century, has a part connection with them, and part with an inscription at Gya, and another on the Allahábad *láth* —these again are linked by intervening gradations to the Tibetan alphabet, of which we know from Tibetan authors the existing Nágari of *Magadha* was taken as the basis in the seventh century We shall soon be able to furnish a tolerably accurate palæographical series of the Devanágari, but can here only allude to the subject —In the tenth and eleventh centuries, it undergoes the modification observable on the *Gaur, Sarnath,* and *Shekawati* inscriptions, resembling very nearly the Bengáli type, of which it is doubtless the parent The modern Nágari is found on monuments of the 13th century, when the irruption of the Moghuls prevented any further change There is also a still earlier character on the Delhí, Allahábád, and Tirhut *laths*, which remains yet undecyphered, strong reasons have been advanced for its alliance to the Sanscrit group, if it contain not indeed the original symbols of that language (See Journal As Soc vols iii iv)

In all other countries, coins and medals have been esteemed the most legitimate archives and proofs of their ancient history In India, little recourse to such evidence has hitherto been available The few Hindu coins discovered have been neglected or deemed illegible The subject is however now attracting more attention, from the recent discovery of Bactrian and Indo-Scythic coins in great abundance in the *Panjáb*, bearing names hitherto quite unknown, in Greek, and on the reverse side in a form of Pehlevi character The series is continued down to, and passes insensibly into, the purely Hindu coins of *Kanouj*, and some are in our possession, with Greek and Sanscrit on the same field This very circumstance tends to bear out Colonel Tod's supposition of the Kanouj princes having an Indo-Scythic origin YAVAN-ASVA, their progenitor, may indeed be "the Greek Azo," of whose coins we have so plentiful a supply* The Sanscrit characters on the *Kanouj* coins are of the earlier type belonging to the fourth or fifth century —they will soon, it is hoped, be read, and put us in possession of several new names.

Other coins, in a still more ancient character, and nearly resembling the undecyphered letters of the *laths* or the cave-sculptures†, are dug up in the Delhi district —they are found in company with Buddhist relics, and will hereafter, doubtless, lead to historical information.

A third series of coins, with devices of a brahmani bull, and a horse-

* See Journal As Soc June 1835 † See Journal As Soc vol iii. p 495.

man, bears the *Gaur Nágari* of the 10th century, on this several names have been made out, BHI'MADEVA, &c, and on some, the Persian titles of the first Musalman conquerors are impressed.

A fourth series, with a sitting female figure, is in the modern Nágari, and is probably the latest of the Kanouj coins. The early Muhammedan coins of SABAKTEGIN, MAHMUD, &c. frequently have a partial admixture of Nágari, which will aid in locating the rest, for while this provoking dearth exists with regard to Hindu coins, we find coins with legible names and Hejri dates for the whole line of their Muhammedan conquerors, whose history is amply preserved without their aid.

One confirmation of a historical fact from numismatic aid has been remarked in the discovery of the name of *Vasu Deva* or *Bas-Deo*, on a Sassanian coin. FERISHTA states, that BAS-DEO, of Kanouj, gave his daughter in marriage to BAHRAM of Persia, A. D. 330 —the coin marks exactly such an alliance, but the Hindu chronicles admit no such name until, much later, one occurs in the Malwa catalogue of ABUL FAZL.

In the dynasties of Nepal and Assam, (at least from the middle of the seventeenth century,) we have been wholly guided by coins in our possession, and it might be possible, by persevering search, to obtain from the same source the names of many Rajas antecedent to this period, which are now doubtful or wholly unknown.

From the time of the subversion of the Moghul empire in the middle of the last century, the historical train of their coins ceases to be available, all the native states having, in imitation of the English, struck their money in the name of a nominal sovereign of Delhi, with no regard to dates, or even to the existence of the monarch, and up to the present time, we have had the names of MUHAMMED SHAH, ALEMGIR II, and SHAH ALEM, issuing simultaneously from the native and the Company's Mint, while a second AKBER sways the pageant sceptre of the seven climes! (See first part of Appendix.)

It must be confessed that a large field still remains open, for the re-investigation of the middle ages of Hindu history, in judicious hands, for independently of the new materials now before us in the numerous coins lately discovered, and in many new inscriptions, we have the aid of the foreign histories of Ceylon, Ava, Tibet and China, we have access to the native volumes before only consulted through interested pandits, and we have Col. TOD's ample traditions and real archives of the principal portion of the Indian continent, the seat of all its important history. To say nothing of the minute and circumstantial numismatic histories of Greece and Rome, it is principally to coins that we owe the history of the Arsacidæ of Persia,

through VAILLANT's investigation The Sassanidan dynasty has also been illustrated from similar materials by FRŒHN and DE SACY MARSDEN has extended the same principle to the Muhammedan princes of Persia and India, and to some few Hindu states, in his *Numismata Orientalia*, and its application may be still further urged in the latter line with the greater success, in proportion to the greater dearth of other materials for history, as is exemplified in the coins of the Bactrian provinces The first thing to be done will be to expunge and lose sight of the learned but entangled accounts of Col WILFORD and others, which, while they have confused, have frightened critics at the perplexity of the subject The *three* VIKRAMÁDITYAS, and *three* Rájá BHOJAS, invented to reconcile discrepancies in dates, will perhaps be found as little needed as the multiplication of BUDDHAS, the two principal of which are now seen by the identity of their biography to be the same personage

Of the confirmation of the testimony of inscriptions by that of coins, we have remarkable instance in the CHANDRAGUPTA and SAMUDRAGUPTA of *Kanouj*, names first discovered on the Allahabad pillar, and now fully made out, along with several others of the same dynasty, on the gold coins found in the ruins of that ancient town In no other record have we any mention of these sovereigns*, who must have been several centuries anterior to CHANDRA DEVA, the founder of the last reigning dynasty, which was overthrown by the Muhammedans.

The native dates of events, as has been already stated, are most vague and uncertain still there are instances in which they have undergone further perplexity from their European commentators

The looseness with which the chronology of the Pauránic genealogies has been investigated, is pointed out in Mr WILSON's remarks on the *Vishnu Purána*, the authority whence Sir WM JONES' list was furnished by his Pandit (Journal As Soc i 437) By some mistake he gave 345 years to the *Kanwa* dynasty of four Rájás, and in this he was blindly followed by WILFORD and BENTLEY, both professing to consult the original Now all the manuscripts examined by Mr WILSON give only 45 years! Indeed, when the epoch of CHANDRAGUPTA is adjusted, the periods given in this *Purána* from PARIKSHIT (B C 1400) down to the termination of the list in A D. 436, are quite rational.

A more glaring instance of error, sanctioned, nay almost perpetuated, by the extent to which it has been spread, has originated in blindly following the authority of the pioneers of our Sanscrit researches, and it is strange that it has never been detected, that we are aware of, up to the present day! We allude to the mode of converting the *Sam-*

* See Journal As. Soc. vol iii 141-4.

vat of VIKRAMÁDITYA into the Christian era by subtracting 56 instead of 57, thereby inducing a constant error of one year in all dates of chronicles, deeds, and inscriptions so read. We have taken some trouble to trace the origin of this mistake, from curiosity, and it shews how subject we are to rest upon the assertions of others without duly scrutinizing the data on which they may be grounded.

VIKRAMÁDITYA died in the *Kali yuga* year 3044, according to WILFORD, whose essays in the 9th and 10th vols of the Asiatic Researches contain the fullest information on the history of the *three* supposed princes of this name and of their common rival SÁLIVÁHANA. The 1st *Samvat*, therefore, concurs with the year 3045 K. Y., and to convert the latter into the former, 3044 must be uniformly deducted. This calculation agrees with WARREN's *Kála Sankalita*, (see prec. Sec., p. 25, and tab. 71,) also with ABUL FAZL's statement, that "in the fortieth year of AKBER's reign (A. H. 1003, commencing 5th Dec. 1594, and ending 25th Nov. 1595, A. D.) there had elapsed 4696 years of the era of YUDHISTHIRA (*Kali yuga*)," making its commencement, 3101 B. C.

Also 1652 years of the era of VIKRAMÁDITYA (1652-1595=57 B. C.)
and 1517 years of the era of SÁLIVÁHANA, (1595-1517=78 A. D.)

The Bengáli Almanacs, published at *Nadiyá*, give precisely the same agreement*. The Almanac of the *Sadar Dewani*, and the statements at the head of all the regulations of Government, coincide therewith: thus, the *Samvat* year 1877 began on the 15th March, 1820 = 57 years difference. If further evidence is required of the knowledge of the true era in possession of English authors, we have in BUCHANAN's Mysore, vol. iii. 112 —"3786 years of the *Kali yuga* had now elapsed, of which the particulars are, 3044 years of YUDHISTHIRA

135 years of VIKRAMA
607 years of SÁLIVÁHANA

3786 K. Y., or A. D. 685."

Here the interval between 3044, whence the *Samvat* commenced, to the *Saca*, is 135, or 57+78 years, (or 135 — 685—607=57)

Again, Dr. HUNTER, in his account of the Astronomical labours of Rája JAI SINH, dates them in "1750 *Samvat*, or 1693 A. D.," making the interval 57 years.

Sir WM. JONES, residing in Calcutta, where the *Samvat* is not used,

* One Bengáli Almanac, however, printed in Calcutta, which was brought to us for comparison, had both the *Samvat* and the *Saca* era one year in defect; the *Bengáli san* being the only era now used in Bengal, little care is taken in regard to the rest. The *Kali yuga*, the foundation of all, was however correct.

in his speculations on Hindu chronology only alluded to the *Kali yuga* DAVIS, in his account of the native method of eclipse calculations, used the *Saca* only, but he frequently alluded to the *Kali yuga*, the first year of which he correctly placed in 3101 B*C.

Whence then can the now common, nay almost universal, application of the subtrahend 56 have proceeded? Simply from WILFORD's having placed the *Kali yuga* epoch in 3100, instead of 3101 B C, in his essay expressly written to settle the eras of VIKRAMÁDITYA and SÁLIVÁHANA, to which too much confidence has been given by subsequent writers Having every where assumed this erroneous datum, it followed, that the *Samvat* epoch, which he rightly placed 3044 after YUDHISTHIRA, would concur with 3100—3044=56 B C * But whence did he get his erroneous epoch of the *Kali yuga*? This also we may conjecture having already seen him convicted, on another count, of blindly adopting Sir W JONES' data Sir WILLIAM, in his Essay on Hindu Chronology, (As Res ii 126,) says, "4888 years of the *Kali yuga* are passed up to the present time," and his table of comparative epochs is calculated from 1788 A D leaving an obvious difference of 4888—1788 = 3100 B C which WILFORD seems to have adopted Had he however looked to the heading of the article, he would have found the date "*January*, 1788" consequently the K Y year commencing in April, 1787, had not yet expired the true difference therefore was 4888—1787=3101, or more exactly 3100¾ years, or for the *Samvat*, —56¾, in nearest round terms 57† (See page 25)

WILFORD is not the only author who was thus led to adopt the wrong equation. COLEBROOKE and WILSON always use 56 JERVIS's Chronological Tables have the same interval, and Colonel TOD employs it throughout his voluminous chronicles of the Rájputs, thereby throwing all his events forward one year, excepting such as fall in the months *Pausha*, *Magha*, *Phalgun*, and half of *Chaitra*, subsequent to A D 1752 He himself notices here and there a discrepancy of one year with the Musalmán historians, which is generally attributable to this cause alone

Capt FELL always uses the correct formula, having had access to

* In a previous part of the very same volume, p 47, WILFORD had used 57 In some places he makes the epoch of the *Kali yuga* 3001 instead of 3101

† There is another advantage in adhering to the difference 57 in general terms rather than the *now* correcter number 56¾, namely, that before the year 1752 it was customary, in England and most parts of Europe, to commence the year in the month of March, or on the Easter moon, so that for all dates anterior to that period the European year may be accounted to have agreed with the Hindu luni-solar reckoning precisely.

native almanacs or to pandits Mr STIRLING, in his Account of Orissa, has the right epoch of the *Kali yuga*, but he applies a wrong equation (+77) to the *Saca* era of his Orissa rájas. It is possible that this may be the mode of reckoning in that province, for we find the *Saca* vary a year or two also in Burmah and Java, if these variations are not indeed attributable to our English references, for, as we have seen above, they are by no means infallible!

The term *Samvat* does not apply exclusively to the era of VIKRAMA'DITYA COLEBROOKE first corrected this erroneous supposition in regard to the *Samvat* of the *Gaur* inscriptions, which probably commenced with the *Bhupala* dynasty, about 1000 A D Colonel TOD has also established the fact of a Balabhi *Samvat* in Gujerát, dating in 318 A D, and a Siva Singha *Samvat*, in the same country, coinciding with 1113 A D This circumstance must be particularly attended to in examining ancient documents

KIRKPATRICK mentions, that RAGHAVA DEVA introduced *the Samvat era* into Nepal, adding, that the *Newar* era is however generally used there, its origin being unknown Now in the list of Nepal rájas, from HARA SINHA DEVA, A D 1323, back to RAGHAVA DEVA, there are but three reigns of extravagant lengths, viz of 88, 85, and 80 years if these be cut down to the usual average, the date of RAGHAVA will fall about 880, which is the epoch of the *Newar* era, so that in all probability the term *Samvat* in this case merely applied to the latter era, and not to that of VIKRAMA'DITYA

It is frequently the custom in eastern authors to estimate dates backwards from the epoch of the writer or compiler Thus, in the Buddhist chronology of Tibet, translated in M CSOMA'S Tibetan Grammar, we find "from the incarnation of SHÁKYA 2647 years," meaning anterior to A. D 1686 In these cases, and particularly where time is estimated in cycles, great caution is necessary in fixing the initial date, and it is not improbable that from this source has arisen much of the confusion of Hindu chronology, as, for instance, from throwing back the origin of the *Kala chakra* system, or Jovian cycle of 60 years, which is traced (see page 29) to the year A D 965, as far as regards its introduction into India Individual inaccuracies are hardly to be wondered at where events are chiefly chronicled from after-recollection Thus the bard CHAND is 100 years out in one place, according to TOD AMEER KHAN'S Biography is one year out for a long period, and endless instances of the same inaccuracy might be adduced The Muhommadans are generally very particular in their dates, and so are the Hindus where they inscribe a deed on brass,—in

this case they frequently allude to some eclipse or full moon, the act of donation being more pious for its occurrence on a religious festival.

It is hardly necessary to enumerate the authorities for the different catalogues to which we may now proceed, since they will be mentioned under each dynasty but it may be as well to premise, that *A I* against a name or date denotes *Ayin Akberí*, *F Ferishta's history*, *J Jones*, *Wd Wilford*, *B Bentley*, *T Tod*, *H Hamilton*, and *W Wilson*

All dates have, for uniformity sake, been expressed in Christian years, which can readily be converted into the various native reckonings by the rules given in page 40

As a convenient preface to the mythological catalogues of the Solar and Lunar dynasties, a tabular sketch of the Hindu Theogony, with a few additional memoranda regarding their sacred works, &c have been inserted For more ample details on this subject, MOORE's Hindu Panthcon, and COLEMAN's Mythology, or the standard work of WARD on the Hindus may be consulted, while for the Pauranic genealogies at length, the elaborate tables published by Dr HAMILTON, at Edinburgh, in 1819, although inconveniently expanded in dimensions, will be found the most complete and authentic reference The tables of Sir WM. JONES, WILFORD, and BENTLEY, in the Asiatic Researches, have the addition of dates, but as before remarked, these are hardly admissible in the earlier periods of fabulous history.

In regard to the tables of the Muhommadan sovereigns, it has been thought sufficient, as their history is so readily accessible, to insert merely their names and titles at length, to facilitate the identification of coins, &c where frequently only a part of the title is visible To connect the line of these intruders into Hindusthán, it was also unavoidable to carry back the list to the Persian, the Arsacidan, Syrian, and Bactrian monarchies, for, although properly speaking beyond the limits of India, their history is, from the time of ALEXANDER continually mixed up with that of the rich and fruitful country so constantly the prey to their invasions and plunder

For the concluding catalogue of important events in the history of British India, we are indebted to Captain HENDERSON's list, published in the Calcutta Quarterly Magazine, which has been kindly revised for our work by the author himself

TABLE XV HINDU THEOGONY

1 *The Infinite Almighty Creator, of the Vedas,* BRAHM

The Hindu Trinity, or *Trimurti*	BRAHMA'S	VISHNU,	SIVA
Their consorts,	Saraswatí, Saktí, or Máyá,	Lakshmí, Padmá, or Sri,	Párvatí, Bhawání, or Durga
Their attributes,	Creator,	Preserver,	Destroyer
Their attendant *vahan* or vehicle,	*hansa*, a goose,	*garuda*, bird,	*nandi*, bull
Their symbols,	time,	water,	fire
Their stations,	Meru,	the Sun,	Jupiter
Their common titles, A U M	*Paraméswara*,	*Narayana*,	*Mahadeva*
Figure under which they are worshipped,	mentally,	*Salig ám*, and 9 *avatars*,	the *linga*, under his million epithets
Analogues in Western Mythology,	SATURN,	JUPITER,	JUPITER

2 *Other members of the Hindu Pantheon, and their supposed analogues in western mythology, according to* SIR WM JONES

SARESWATI,	Minerva, patroness of learning, [Nec	DURGA',	Juno
GANES'A,	Janus, god of wisdom	NA'REDA,	Mercury, music
INDRA,	Jupiter, god of firmament	KRISHNA,	Apollo
VARUNA,	Neptune, god of water	BHAWA'NI',	Venus
PRITHIVI,	Cybele, goddess of earth	KA'LI' or DURGA',	Proserpine
VISWAKARMA,	Vulcan, architect of gods	AGNI,	Vulcan, fire
KA'RTIKEYA, or SKANDA,	Mars, god of war	SWA'HA',	Vesta, (his wife)
KA'MA,	Cupid, god of love	ASWINI-KUMA'RA,	Castor & Pollux
SURYA, or ARKA,	Sol, the Sun Mithra, the same	ARUNA,	Aurora
HANUMA'N, son of PAVANA,	Pan, the monkey god	ATAVI DEVI,	Diana.
RA'MA,	Bacchus, god of wine	KUVE'RA,	Plutus, god of riches
YAMA,	Pluto or Minos	GANGA',	the river Ganges
HERACULA,	Hercules.	VA'YU,	Æolus
ASWICULAPA,	Æsculapius? (genii)	SRI',	Ceres
VAITARINI,	The river Styx	ANNA PURNA,	Anna Perenna

3 THE TEN BRAHMA'DICAS, *children of Brahmá, or* PRAJA'PATIS, *lords of created beings*

	Marichi,	*morality*	6 Kritu,	*piety*
	Atri,	*deceit*	7 Daksha,	*ingenuity*
	Angirasa,	*charity*	8 Vasishtha,	*emulation*
	Pulastya,	*patience*	9 Bhrigu,	*humility*
	Pulaha,	*pride*	10 Narada,	*reason*

THE SEVEN MENUS, *of the present creation*

1	Swayambhuva,	*Adam?* 4006 B C
2	Swarochesha,	
3	Uttama,	
4	Tamasa,	*Chaos, Thaumaz* of Egypt?
5	Raivata,	
6	Chakshusha,	
7	Vaivaswata, or Satyavrata,	*Noah?* 2950 B C

THE SEVEN RI'SHIS, *sprung direct from Brahmá*

1	Kasyapa,	Muni
2	Atri,	Muni
3	Vasishtha	
4	Visvamitra	
5	Gautama	
6	Jamadagni	
7	Bharadwája	

6 THE TEN AVATA'RAS, *or incarnations of Vishnu*

Matsya,	*the fish*
Kurma,	*the tortoise*
Váráha,	*the boar*
Narasinha,	*the lion*
Vámana,	*the dwarf*
Parasuráma,	*son of Jamadagni*
Ráma,	*of the solar race*
Krishna,	*of the lunar race*
Buddha,	*of the Buddhists*
Dharma-bhushana or Kalki-avatár,	*to appear at the close of the Kali yuga*

7 THE ELEVEN RUDRAS, *or forms of Siva*

1 Ajaikapáda,	The names are differently given in the *Bhágavat*	———
2 Ahivradhna,		———
3 Virupáksha,		
4 Sures'wara,		Mohana.
5 Jayanta,		Bama
6 Bahurúpa,		———
7 Tryambaka,		Bhawa
8 Aparájita,		Aja
9 Savrita,		Rawati
10 Hara,		Ugra
11 Isha,		Bhíma

8 THE EIGHT VASUS, *a kind of demi-god*

1 Dhava,	5 Anila, or *wind*
2 Druva,	6 Anala, or *fire*
3 Sóma, the moon,	7 Prabhusha
4 Vishnu,	8 Prabhasa

THE TEN VISHWAS, *a class of deity worshipped in funeral obsequies*

Vasu,	6 Káma
Satya,	7 Dhriti
Kratu,	8 Kuru
Daksha,	9 Pururava
Kála,	10 Madrava

10 THE EIGHT DIKPA'LAS, *guardians, and the* EIGHT DIKPATIS, *lords, of the cardinal points*

1	Indra,	*east*	1 Surya,	*the Sun*
2	Agni, (or Vahni,)	*south-east*	2 Sukra,	*Venus*
3	Yama,	*south*	3 Mangala,	*Mars*
4	Nairrita,	*south-west*	4 Ráhu,	*asc node*
5	Varuna,	*west*	5 Sani	*Saturn*
6	Marut, (Vayu, Pavan,)	*north-west*	6 Chandra,	*the Moon*
7	Kuvera,	*north*	7 Budha,	*Mercury*
8	Isana, (Prithivi,)	*north-east*	8 Vrihaspati,	*Jupiter*

11 THE TWELVE A'DITYAS, *monthly names or emblems of the Sun*

1 Varuna	5 Indra	9 Swarnareta
2 Surya	6 Ravi	10 Divakara
3 Vedanga	7 Gabhasti	11 Mitra
4 Bhánu	8 Yama	12 Vishnu

12 THE 27 NAKSHATRAS, *daughters of Daksha, or lunar mansions*

1 Aswini	10 Maghá	19 Múlá
2 Bharani	11 Purva Phalguni	20 Purva A'sárha
3 Kritika.	12 Uttara Phalguni	21 Uttara A'sárha
4 Rohini	13 Hasta	22 Sravana
5 Mrigasira	14 Chitra	23 Dhaneshtha
6 Aidra	15 Swati	24 Satabhisha
7 Punarvasu.	16 Visákha	25 Purva Bhadrapada
8 Pushya	17 Anuradha.	26 Uttara Bhadrapada
9 Aslésha.	18 Jayeshtha	27 Revati

13. The names of Buddha.

Buddha, Sákya muni or Sinha, Gautamá, Tathágata, Mahá-sramaña, Saudhodani, from his father Sudhodhana, Arkabandhu, or kinsman of the Sun, Máyá devi-suta, or child of Mayá

But, of the Musalmáns	Pout, of Siam
Buddas and Sarmanes, of the Greeks	Sommonokodam, of ditto
Mercurius Mayæ filius, of Horace	Godama, of Ava
Bud or Wud, of the pagan Arabs	Xaka, of Japan
Woden, of the Scandinavians	Chakabout, of Tonquin China
Toth, of the Egyptians	Chom-dan-das, } of Tibet
Fo, Foe, or Fo-hi, and Sa ka, of the Chinese	Sangs-gyas, } of Tibet

Bauddha System of Theogony

Adi-buddha, the Supreme Being, created by *dhyan* five divine buddhas, who are quiescent viz

1 Vairochana Akshobhya	Each of whom produced from himself his son, or *Bodhisatva*,	1 Samanta Bhadra
2 Ratna		2 Vajra Pani
3 Sambhava		3 Ratna Pani
4 Amitabha		4 Padma Pani
5 Amogha Siddha		5 Viswa Pani

The *Buddhist Triad*, or mystic syllable A U M, is interpreted —
A, the *Viya mantra* of the male *Buddha*, the generative power
U, ditto of the female *Dharma* or *Adi Prajni*, the type of productive power
M, ditto of *Sanga*, the union of the essences of both

The seven human or earth-born Buddhas

1 Vipasya	5 Kanaka Muni
2 Sikhi	6 Kasyapa, and
3 Viswa Bhu	7 Sa'kya Sinha
4 Karkut Chand	A'rya Maitri, the future Buddha

14 The 24 Jinas or Tirthankaras, *of the Jains*

		where born	*where died*
1	A'dináth or Rishabhanáth,	Ayodhya,	Gujerat
2	Ajitanath,	do	Mt Síkhar [hod
3	Sambhunáth,	Sawanta,	Parisnáth]
4	Abhinandananáth,	Ayodhya,	do
5	Sumatinath,	do	do
6	Padmaprabhunáth,	Kausambhí,	do
7	Suparswanáth	Benares,	do
8	Chandraprabha,	Chandrapur,	do
9	Suvidhanath or Pushpadanta,	Kakendrapuri,	do
10	Sitalanáth,	Bhadalpur,	do
11	Sri Ansanath,	Sindh,	do
12	Vasupádya,	Champapuri,	Champapuri
13	Vimalanáth,	Kumpalapuri,	Mt Síkhar
14	Anantanath,	Ayodhya	do
15	Dharmanáth,	Ratanpuri,	do
16	Santanáth,	Hastinapur,	do
17	Kunthunath,	do	do
18	Aranáth,	do	do
19	Mallinath,	Mithila,	do
20	Munisuvrata,	Rajgriha,	do
21	Neminath,	Mithila,	do
22	Naminath,	Dwarika,	Mt Girinára
23	Parswanáth,	Benares,	Mt Síkhar
24	Vardhamána or Mohávira Swámi,	Chitrakôt	Pawapuri

15 THE SAPTA DWI'PAS *or divisions of the ancient world, ruled by the sons of* PRIYABRATA, *king of* ANTARVE'DA

Oldest division		*Newer division*	
Jambudwipa,	India	*Jambudwipa,*	India
Angadwipa,	Nipal ?	*Plakshadwipa,*	Asia minor, W
Yamadwipa,	Assam, Ava ?	*Salmalidwipa,*	Ceylon ? W
Yamaladwipa,	Malaya	*Kushadwipa,*	Assyria, Persia, &c
Sankhadwipa,	Africa	*Karanchadwipa,*	near the Baltic ? W
Kúshadwipa,	Assyria	*Sákadwipa,*	part of Kushadwípa, Britain ? W
Varáhadwipa,	Europe	*Puskaradwipa,*	ditto Ireland ? W.

16 THE FOUR VEDAS

1 The *Rig véda*
2 The *Yajur véda*
3 The *Sáma veda*
4 The *Atharva veda*

17 THE FOUR UPAVE'DAS

1	The *Ayush,*	medicine
2	The *Gandharva,*	music
3	The *Dhanush,*	warfare
4	The *Sthápatya,*	mechanics

18 THE SIX ANGAS, *or bodies of learning*

1	*Siksha,*	pronunciation	4	*Khandas*	prosody
2	*Kalpa,*	religious acts	5	*Jyotish,*	astronomy
3	*Vyákarana,*	grammar	6	*Nirukti,*	interpretation of Védas

19 THE FOUR UPA'NGAS

1 *Purána,* history, comprising the 18 puránas
2 *Nyáya,* logic, and the principles of knowledge
3 *Mímánsá,* religious principles and duties
4 *Dhrma shástra,* law, human and divine

20 THE EIGHTEEN PURA'NAS

1 *Brahma-purána*
2 *Padma,* or lotus
3 *Brahmanda,* egg of Brahma
4 *Agneya,* or Agni, fire
5 *Vaishnava,* or Vishnu-purána
6 *Garuda,* Vishnu's bird
7 *Brahmavaivarta,* or transformations of *Krishna* (as the supreme)
8 *Saiva,* or of Siva
9 *Linga* purana
10 *Náradiya*
11 *Scanda*
12 *Márkandéya*
13 *Bhavishya,* prophetic
14 *Mátsya,* or the fish
15 *Váráha,* or boar
16 *Kaurma,* or Kurma, tortoise
17 *Vamana,* or dwarf
18 *Bhágavat,* or life of Krishna

21 *The six Principal Sects of the Hindus*

1	Saiva,	worshippers of	Siva, in his thousand forms
2	Vaisnava,		Vishnu
3	Sauriya,		Surya, or the Sun
4	Ganapatya,		Ganesha
5	Sacta,	. . .	Bhawání, or Parvatí
6	Bhagavati,	....	who recognize all 5 divinities equally.

PAURA'NIC GENEALOGIES.

TABLE XVI DESCENDANTS of SWAYAMBHUVA, *the first Manu, King of Brahmavarta, and progenitor of mankind, (Adam ? J) according to the Bhagavat Purána,* H

BRAHMA

SWAYAMBHUVA

UTTAMAPADA, king of Bharatkhanda (*From whom descended the Kings of Brahmavarta*)	PRIYAVRATA, king of Antarvéda* AGNIHIDRA, king of Jambudwipa (*From whom descended the Kings of Bharatkhanda*)
Dhruva	Nabhi
Vatsara	Rishabha-deva†
	BHARATA
Vyushta	Vindhasena
Sarvatajas	Devatajit
Chaxusha	Devadyumna
Ulmuka	Puresishthi
Angga	Pritiha
Vena-adharmarata	Pritiharta
Prithu	Bhuma
Vijilaswa, or Antardhyana	Udgitha
Havirdhana	Prastawa
Varhishata, or Prachinkarhi	Bibhu
Prachetas, and 9 brothers	Prathusena
DAKSHA Prajapati,	Nakta
among whose numerous progeny were,	Gaya
10 daughters, married to DHARMA	Chitraratha
13 daughters, married to KASYAPA MUNI, the son of MARICHI, (see Solar race,) progenitors of men, animals, vegetables, &c	Sumrata
	MARICHI (See Solar race)
	Binduma
	Madhu
Dana mother of evil genii, comets, &c	Viravrata
Diti, mother of the *Daityas*, or *Asuras*	Manthu
Aditi, mother of the gods and *Suras*	Bhauvana
27 daughters, the *Nakshatras*, married to the Moon	Twashtha
1 daughter, mother of the 11 Rudras, and others of less importance	Viraja, and 100 sons whose names are unknown

* Priyavrata was also father of Idhmajabha, king of *Plaxa dwipa*, Yagyabahu, of *Salmala dwipa*, Hiranyarita, of *Kusa dwipa* Ghritaprishtha, of *Karangcha dwipa* Medhatithi, of *Saka dwipa*, and Bitihotra, of *Puskara dwipa*, of whom the descendants are not traced farther than the first generation

† Rishabha-deva was also father of the kings of various other nations, viz Kus-warta, of *Kus warta-dés*, Ila-warta, Brahma-warta, Malaya, Ketu, Bhadraséna, Indrasprik, Bidharbha, and Kikata, of *désa*, or countries, bearing the same names besides the nine immortal *siddhas*, Kabiyaga, Hari, Antarixa, Prabuddha, Pippulayana, Abirhotra, Dranila, Chumasa, and Karubhajana also 81 brahmans, names unknown.